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NATIONAL SURVEY OF PERSONAL INCOMES AND SAVINGS[1]

INTRODUCTION

This survey was the first national sample survey of personal incomes and savings to be made in this country. It should therefore be regarded as an experiment as well as a breaking of new ground. Over the course of the past 50 years, starting with Rowntree's well-known survey in York, numerous attempts have been made to obtain direct and detailed information about household income or expenditure; but in every instance these inquiries have been limited either to one area—one town or perhaps a group of towns—or to one class of the population—usually the working-class. The main preoccupations of those who planned these surveys were either poverty or the working-class cost of living; in any case it was generally considered doubtful whether other classes of the population would be willing to give information about their financial affairs. The focus of interest of the Survey of Personal Incomes and Savings is not poverty nor particularly the working class : on the contrary, since the principal aim of the survey is to find out about personal holdings of liquid assets and personal saving habits, the richer sections of the community are of equal or of even greater importance. This survey was therefore the first in which a nationwide sample of people of all classes were asked for detailed information about their incomes and assets. The data collected help to throw light on four major areas of economic research.

Firstly, the survey provides up-to-date and, within the limits of survey technique, reasonably complete information about the distribution of personal incomes. All previous discussions of this topic have been based on the statistics produced by the Inland Revenue Department which, though very valuable, are inadequate in certain respects, notably in that they exclude people whose taxable incomes fall below the income tax exemption limit. Moreover the Inland Revenue's published figures are usually about two years out of date and this, in a period of rapidly changing money incomes, seriously diminishes their usefulness.

Secondly, the survey provides the first detailed study of the distribution of personal liquid asset holdings. This is a subject which has been hitherto an almost completely closed book. With the exception of an inquiry undertaken on behalf of the National Savings Committee in 1948, the results of which relate only to national savings, no attempt has been made to discover the distribution of liquid asset holdings amongst persons. The data provided by this survey, even when interpreted with due caution, add considerably to our knowledge in this field. In view of the discussion that takes place from time to time of the possible effects of the existence of a large stock of liquid assets in the hands of the public it is an advantage to know something about what types of people are in control of these assets and the degree of concentration of ownership. And for those whose business it is to supply assets intended for the ' small saver ' it should be of interest to discover how such assets are in fact distributed.

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[1] The survey was financed by a grant from the Nuffield Foundation. Detailed acknowledgments will be found at the end of the paper.

Thirdly, the survey provides direct information about personal saving activity. Most of total saving in the present day is done by collective agencies, such as corporate businesses and the government, and the contribution of personal saving to the total is relatively small. But it is not the less important for that. The situation can change : in some circumstance there might be a rapid increase in the volume of personal saving, as has occurred recently in the United States; and in other circumstances there might be a fall in personal saving, or a growing tendency to use the savings of the past to supplement current income. Since any such changes would have widespread economic repercussions the more that can be found out about saving propensities and how they are likely to be affected by different causes the better. Much of the discussion of this problem has been based on the movements from year to year of national income aggregates; but another approach can be made through the analysis of survey data on the behaviour of individual families and persons. We can consider, for example, how much saving is done by people of different occupations, incomes and ages and what forms their savings take; what proportion of personal saving is attributable to such regular forms of saving as payments for life assurance, pension fund contributions and the repayment of mortgages; whether the current fall in total deposits in the post office savings bank is caused by withdrawals by people of a particular sort, and what, if possible, are their reasons for drawing out their money at this time. A multitude of questions present themselves, and although the survey cannot hope to answer all of them it will provide a much needed factual background to the discussion; some hypotheses it will be possible to reject, while others will receive sufficient support to justify their further consideration.

The survey data can also be used as the basis for estimates, subject to sampling and other errors, of the total volume of personal saving and of its component parts. Such official estimates as have been made of this part of the national income are admitted to be only broad approximations; in confirmation of which the figures undergo substantial revisions from time to time. Consequently, despite the inherent difficulties in making estimates by survey methods of an aggregate of this sort, which is the outcome of widely varying behaviour by different members of the population, the survey's results are a useful check on estimates derived from other sources

The fourth major area of research in which the survey's results can be used is the social and economic structure of the British population. Here we have for each head of a family or single adult person in the sample a record of social characteristics—such as age, sex, occupation and number of children—together with a wide variety of economic characteristics—such as gross and net income, asset holdings, rent paid, ownership of a car, a television set or other specified durable goods, life insurance payments, membership of a pension fund and so on. This mass of information constitutes a rich mine of data on a wide variety of problems. It can be used to answer such questions as: Who are the poor? What are the incomes and occupations of people living in council houses? How are rents related to incomes? What sort of people belong to national savings groups? What sort own cars or television sets? Most of these are side-issues to the main purpose of the survey; but many have practical importance as well as an intrinsic interest. Some of them will form the subject, at a later stage, of separate studies.

The purpose of this paper is to introduce a series in which the principal results of the national survey will be outlined. This paper is limited to a brief description of the methods used and a summary of the general findings. It also contains, in an appendix, definitions of the social classifications employed in the survey together with tables showing the interrelations between them. In subsequent papers three main topics will be explored: (1) the distribution of personal incomes; (2) the distribution of liquid assets and other assets; (3) personal saving habits. It is also intended to publish a special paper giving a detailed description of methods and a discussion of the principal methodological problems encountered.

METHOD

The survey, which was made in late April and May 1952, extends to the whole of Britain but not to Northern Ireland. Nearly 2,600 people were interviewed in 69 town and country areas. The persons interviewed were the heads of ' income units ', a term which must now be explained.

An income unit is either a single adult person with a separate income or a group of persons who pool their income.[1] All single persons of 18 or over are treated as separate income units unless they have an income of under £50 a year and are living with relations; in these rather exceptional cases they are regarded as forming part of their relations' income unit. Married couples living together are assumed to pool their incomes—so that each married couple forms one income unit—and children under 18 are included in the income units of their parents. Thus income units are broadly of the following four types: (1) single persons of 18 or over, without children; (2) a few single persons, mostly widows, with children; (3) married couples, without children; (4) married couples, with children. The head of a single person income unit is that person; of a married couple it is assumed to be the husband.

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[1] In the Oxford pilot survey they were called ' spending units ' which is also the term used in the American Survey of Consumer Finances.

In some households there is only one income unit; in others two or more.[1] The typical household of one income unit is the married couple, with or without young children, but otherwise living alone. Some single persons also live alone; but the majority live with their relations. The income unit whose head is also head of a household is called a primary income unit; the others are called secondary income units.

The sample of income units to be interviewed was obtained in the following manner. All the local administrative areas in the country were grouped according to region, administrative type and degree of industrialisation. Five of these groups, or ' strata ', each consisting of one large town, were sampled direct. The other 64 strata, which were of approximately equal population size, contained varying numbers of administrative areas, and from each of them one area was selected by a method which gave each area a probability of selection proportionate to its population. Within each of the 69 areas so selected a sample of ' rateable units ' was drawn from the rating list of the local authority. In this operation larger houses, of £30 rateable value or over, were deliberately oversampled : their probability of selection was five times as great as in the case of smaller houses. Premises that were clearly uninhabited or were used for institutional purposes, *e.g.*, hospitals, schools, prisons, were then excluded, and the remainder formed the list of addresses at which interviews were to be made. Interviewers were instructed to try to interview the heads of all income units living in the houses on their list, up to a limit of three households in each dwelling.

The questions asked were for the most part of a rather confidential sort and a number of people were unwilling to answer them. About 16 per cent of income units, in the population as a whole, refused to help : people in large houses were less helpful than people in small houses and people in the towns less than people in the country. In addition there were about 9 per cent of income units who were not interviewed because they were always out, too ill or otherwise unable to be interviewed. The results of this survey, therefore, are based on the 75 per cent of the population who were both available and willing to be interviewed. Some allowance has been made for any bias that may arise from the failure to interview part of the population by weighting the survey results according to the response rates in different regions, sizes of town and sizes of house (in addition to the normal weighting down of the large houses to compensate for their original oversampling). To test whether the weighted sample retains any obvious bias the survey results have been compared with independent estimates of the distribution of the population by age, industry and occupation; the results are generally quite close and appear to be within the range of sampling error.

Apart from possible bias these results are subject to sampling error, reporting error and processing error. Some estimates have been made of the range of sampling error and are given later. Reporting error can arise both in surveys and in complete censuses. It can be due to misunderstanding, memory failure, inaccurate recording of information and so on. Processing errors also can arise in all reseseach work that involves the transcription, coding, machining or computing of data. No estimates can be given of the possible size of these errors, except to say that all that could reasonably be done to avoid them, and to find them if they did occur, has been done.

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[1] The definition of a household is given in the appendix.

GENERAL FINDINGS

Income

There are, it is estimated, about 22 million income units in private households in Great Britain.[1] The average income per income unit in 1951-52, as computed from the survey, is £424. Thus total personal income of private households in Great Britain in this period can be estimated to be in the region of £9,300 million. This figure is not directly comparable with the estimate of aggregate personal income published in the official national income blue book : there are differences both in definition and in coverage. The definition of income used in the survey includes all cash income, whether taxable or non-taxable, received by any member of the income unit. It does not include income in kind—*e.g.*, the net annual value of owner-occupied houses, cheap coal supplies to coal-miners, and free board and lodging given to domestic servants—except in the case of farmers where an estimate was asked for of the value of produce consumed in the home. The survey covers only income units in private households and it does not include in personal income accrued interest on Savings Certificates or the property income of non-profit making bodies.

The estimated distribution of personal incomes is shown in Table I.

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[1] There are probably another 2 million income units in institutions of one kind and another, including the armed forces. These estimates are derived from the preliminary tabulations of the 1951 Census, published in *One Per Cent Sample Tables Part I*. The published tables do not, unfortunately, give all the information required to make an exact estimate and the figure of 22 million must be treated as provisional.

TABLE 1

Distribution of Personal Incomes

(*Income units in private households in Great Britain, 1951–52*)[1]

Income before tax	*Percent of income units* %	*Estimated number of income units* '000
£0—99	7.8	1,710
£100—199	16.2	3,560
£200—299	14.2	3,110
£300—399	20.6	4,540
£400—499	16.0	3,520
£500—599	9.8	2,160
£600—699	5.4	1,190
£700—799	3.1	690
£800—999	2.9	640
£1000—1499	2.3	500
£1500—1999	0.8	170
£2000 and over	0.9	210
Total	100.0	22,000

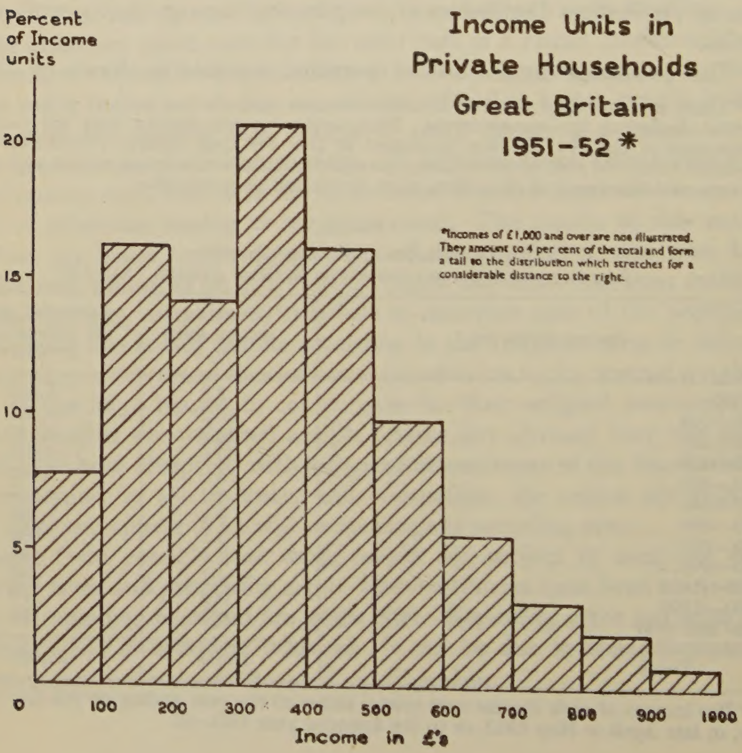
[1] The income of each income unit relates either to the year ending on the day of interview, in late April or May 1952, or to the financial year 1951–52.

It will be seen that 24 per cent of income units, about 5½ million income units in all, have an income of less than £200 a year. Over half the total number have incomes between £200 and £500; about a fifth have incomes between £500 and £1,000; and 4 per cent, less than 900,000 in all, have incomes of £1,000 and over. The most frequent level of income, the mode, is in the region of £360 and the median income is £357. Half the population have incomes above this level and half below. The arithmetic average which, as already mentioned, is £424[1] is greater than the mode because a small number of large incomes contribute a large amount to the total. A peculiarity of the distribution, which is clearly shown in Chart I, is the occurrence of a secondary mode in the £100–199 group. On a closer examination of the data it is found that this secondary mode is in the region of £120 and appears to be produced, in the main, by the clustering of social insurance payments for married couples, especially retirement pensioners, at about this point. The position of this mode is likely to vary in the future according to the decisions of Chancellors of the Exchequer on the basic rates of benefit payable for national insurance and similar purposes.

[1] The standard error of this figure is estimated to be something less than £12.

CHART I

DISTRIBUTION OF PERSONAL INCOME



*Incomes of £1,000 and over are not illustrated. They amount to 4 per cent of the total and form a tail to the distribution which stretches for a considerable distance to the right.

Change in Income

The year 1951–52 was a year of sharply rising prices and money incomes. It is not surprising therefore that half the income units in private households reported a rise in income in that year compared with the year before. In Table 2 it will be seen that 20 per cent of them, or 4½ million, had increases of less than 10s. a week; 10 per cent, or 2½ million, had increases of between 10s. and £1 a week; nearly the same proportion had increases of between £1 and £2 a week; and the remainder, 1¾ million, had bigger increases. On the negative side, it is estimated that about one-eighth of income units, or 2¾ million, suffered reductions in income of widely varying amounts. More than a third of income units reported no change in income.

Most of the people who received increased incomes had only small increases, while the people whose incomes fell were as likely to suffer a large fall as a small one. This seems to be a typical characteristic of changes in income, at least in a period such as the present: it is a slow and difficult business to climb upwards; the fall, if it comes, is more likely to be swift and sudden.

TABLE 2

Change in Gross Income
(Income units in private households in Great Britain, 1950–51 to 1951–52)

Change in income between 1950–51 and 1951–52	*Percent of income units* %	*Estimated number of income units*[1] *'000*
Increase of:		
£200 and over	2.0	500
£100—199	5.0	1,200
£50—99	9.4	2,200
£25—49	10.6	2,500
£1—24...	19.5	4,600
No change	35.0	8,200
Decrease of:		
£1—24...	1.5	400
£25—49	2.2	500
£50—99	3.0	700
£100—199	3.1	700
£200 and over	2.2	500
Not ascertained	6.5	—
Total	100.0	22,000

[1] It is assumed that those whose change in income was not ascertained were distributed in the same manner as those whose change was ascertained.

Analysis of the population by age group shows that younger people more often had a rise in income than older people; the incomes of the latter group were more inclined to be fixed in amount or to diminish. From the reasons given for the changes in income it appears that the more frequent increases of younger people, while partly due to their having a greater chance of an increased rate of pay than older people, were mainly due to the more frequent promotion of younger people to better paid jobs. One reason why older people more frequently suffered a fall in income seems to be that they are more prone to short time, unemployment and sickness; another is that they more often experience a reduction in the number of earners in the income unit, as for example through the death of a husband or the departure of a grown up child.

Analysis by occupation shows that the self-employed have much more widely fluctuating incomes than those in employment. This is partly a result of the fact that the self-employed are less certain about what changes have occurred in their incomes from one year to the next, except when the change is large. Therefore they tend to report either no change or a substantial one. At the same time it is an obvious fact that the incomes of the self-employed do fluctuate more widely than the incomes of people whose rates of pay are fixed by contract. Most retired and unoccupied people had no change in income but about a quarter of them reported a small rise resulting from the increase in retirement pensions.

Analysis by industry and by occupational status suggests that a greater proportion of manual workers in the metals and engineering manufacturing industry had increases in pay than of those in other industries; the greatest proportion of decreases in income occurred amongst manual workers in manufacturing trades other than metals and engineering, *e.g.* textiles, where short time and unemployment was an important cause.

Change in the Financial Situation of Income Units

Each person interviewed was asked the following question: 'Would you say that you (meaning the whole income unit) are better off or worse off financially now than you were a year ago ?' In reply to this over half of them expressed the view that they were worse off; 29 per cent said they were 'about the same'; and 19 per cent said they were better off. In Table 3 these replies are analysed for various sub-groups of the population. It can be seen, for example, that amongst the occupied population the proportions vary very little, though there is a slight tendency for the self-employed to hold a worse opinion of their situation than other groups. In sharp contrast, and as one might expect, very few of the retired and unoccupied heads of income units considered themselves better off financially than a year ago and two-thirds of them considered themselves worse off.

The opinion that a person holds of the change in his financial situation compared with a previous date is influenced by various considerations: obviously great importance attaches to the change in his money income and to the accompanying changes in the prices of the things he buys. In answer to questions asking in what ways they were better or worse off, 15 per cent of income units said they were better off because of a rise in money income; 12 per cent said they were worse off because of a fall in money income; but the principal reason for feeling worse off was the rising cost of living, and this was referred to by 37 per cent of all income units. The association between the degree of change in money income and the opinion expressed about the change in the income unit's financial situation is illustrated in

TABLE 3

The Opinion of Income Units on the Change in their Financial Situation
(*percentage distribution*)

Type of income unit	*Position in Spring 1952 compared with a year earlier*			*All*	*Number in sample*
	Better off	*About the same*	*Worse off*		
All income units	19	29	52	100	2598
Occupation of head					
Self-employed	17	28	55	100	230
Managers and technical	22	29	49	100	259
Clerical and sales	25	31	44	100	330
Skilled manual	24	28	48	100	807
Unskilled manual	21	30	49	100	388
Retired and unoccupied	5	31	64	100	571
Change in income from 1950-51 to 1951-52					
Increase : £100 and over	48	25	27	100	206
£25—99	34	26	40	100	491
£1—24	19	34	47	100	441
No change	8	37	55	100	950
Decrease	9	13	78	100	322
Not ascertained	16	24	60	100	188
Age of head					
18—24	47	27	26	100	296
25—34	23	30	47	100	456
35—44	18	27	55	100	492
45—54	15	29	56	100	499
55—64	10	29	61	100	382
65 and over	8	35	57	100	473

the second section of Table 3. That there should be a consistent positive relationship between the two attributes is not perhaps so remarkable as the incompleteness of that association. For example, 9 per cent of the income units who had suffered a fall in money income continued to express the view that they were better off financially than a year ago while only half the income units whose annual income had increased by £100 or more were satisfied that they were better off. One reason for this is that the two sets of data refer to different time periods: the change in income refers to the difference between total money income in the years 1950–51 and 1951–52, whilst the opinion about the financial situation refers to the difference in the situation at the end of each period. Moreover there are other considerations that affect a person's feelings about his financial situation. Some that were mentioned in response to this question were: taxation changes announced in the recent budget, the receipt of a legacy or some other windfall and the incidence of special expenses.

The variation in opinions about the financial situation expressed by people of different ages, shown in the third section of Table 3, is very striking. Nearly half the young people under 25 considered themselves better off; in the next age group only a quarter were of this opinion; and from there onwards the proportion drops steadily until it is only 8 per cent for those of 65 and over. The young people are clearly a special category: over 40 per cent of them said they were better off because of a rise in income and very few of them, only about one in eight, seemed to consider themselves worse off on account of rising prices. As will be seen from the appendix tables nearly 90 per cent of this group are secondary units living with their relations and a similar proportion are single persons. This sort of person is not so directly affected by rises in the cost of food and other household expenses.

As already mentioned 37 per cent of income units referred to the rising cost of living as a reason for being worse off. People in conurbations complained about the cost of living more frequently than people in other urban areas or in country areas; and people with dependent children more than those without dependent children. In general the more dependent children there were in the income unit the greater the tendency for the head of the income unit to feel that they were worse off financially than a year ago. It seems that the rise in prices during 1951–52 affected people with children more severely than those without children.

Income Expectations

People were also asked : ' In the coming year do you expect your income to be larger, about the same or smaller ? ' The answers to this question show very similar trends to those found in the records of past changes of income. Altogether 27 per cent of income units expected their incomes to be larger, 55 per cent about the same, 11 per cent smaller and 7 per cent were unable to say one way or the other. The younger age groups were more optimistic than the older ones : half the heads of income units aged under 25 expected an increase, a third of those aged 25–34, a quarter of those aged 35–44 and 18 per cent of those aged 45 to 64. However amongst those aged 65 and over 24 per cent expected an increase; this expectation was based in almost all cases on the promised rise in retirement pensions.

When income expectations are analysed for different income groups it is found that in general those with low incomes less often expect either an increase or decrease in income than those with higher incomes. For example, 19 per cent of the people with incomes of £200–399 expected an increase in pay compared with 25 per cent of those with £1,000 and over; at the same time only 6 per cent of the former expected a fall in rates of pay against 15 per cent of the latter.

There is some association between the change in income of a particular income unit in the past year and its expectation for the coming year; but not a great deal. One-third of those who had an increase last year expected another increase in the coming year against 8 per cent who expected a fall; while amongst those whose incomes fell last year 22 per cent expected a rise and 20 per cent expected a further fall. Ten per cent of these latter were uncertain in their expectations compared with 6 per cent of the former. It seems that there are various cross-currents in income changes from year to year : on the one hand there are general trends in an upward or downward direction, as for example the younger age groups moving up and the older ones moving down; on the other there are individuals, especially the self-employed, whose incomes fluctuate widely from year to year. The influence of the trend is to encourage people to believe that what happened last year will happen again in the coming year, while people in certain occupations or subject to other special influences believe that if last year was a bad year next year will be better, or vice versa.

Personal Holdings of Liquid Assets

Table 4 shows the distribution of personal liquid asset holdings. The liquid assets included are deposits in the post office savings bank, trustee and other savings banks and joint-stock banks; Savings Certificates (valued at purchase price) and Defence Bonds; and shares and deposits in building societies and co-operative societies. Personal holdings of currency are not included.

TABLE 4

Personal Liquid Asset Holdings
(Income units in private households in Great Britain, Spring 1952)

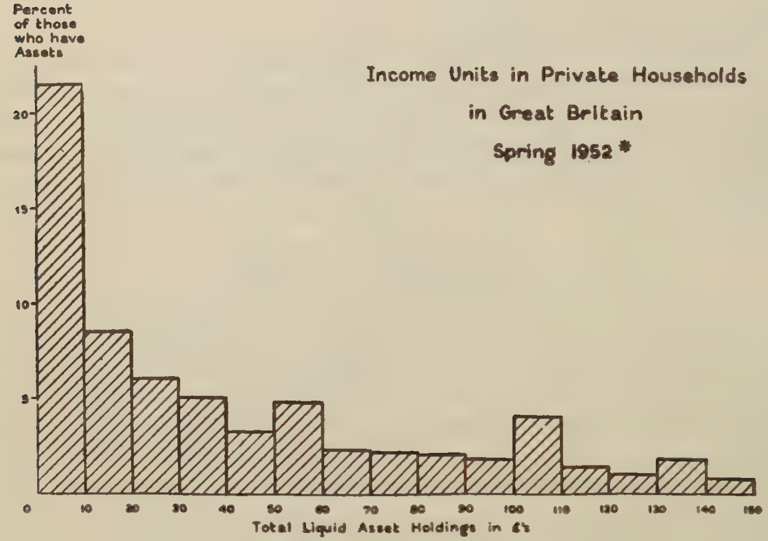
Total liquid assets Spring 1952	*Group interval* £	*Percent of income units in each each group* %	*Cumulative percent*[1] %	*Estimated number of income units in each group*[1] *'000*
Nil	0	31.9	31.9	7,050
£1—9	10	13.3	46.6	3,200
£10—19...	10	5.3	52.3	1,250
£20—29...	10	3.7	56.4	900
£30—39...	10	3.1	59.8	750
£40—49...	10	2.1	62.0	500
£50—59...	10	3.0	65.3	700
£60—79...	20	2.7	68.3	650
£80—99...	20	2.3	70.9	550
£100—149	50	5.5	76.9	1,300
£150—199	50	2.6	79.8	650
£200—299	100	4.3	84.5	1,050
£300—499	200	4.3	89.2	1,050
£500—749	250	3.5	93.0	850
£750—999	250	1.7	94.9	400
£1,000—1,999 ...	1000	2.8	97.9	700
£2,000 and over ...	—	1.9	100.0	450
Not ascertained ...	—	6.0	—	—
Total	—	100	100.0	22,000

[1] In these two columns the people whose assets were not ascertained have been distributed amongst those who had assets and disclosed their amount.

The most striking feature of this table is that some 32 per cent of income units, amounting to 7 million cases, have no liquid assets at all; nearly half of them have less than £10 and over half have less than £20. From this point onwards the distribution is widely dispersed, with comparatively small numbers falling in each group. The distribution of those with assets, who themselves are only two-thirds of the total, is illustrated in Chart 2; but because of the peculiar shape of the distribution only those with less than £150 are represented. The remainder, constituting about a third of those with assets, occupy a very long and slowly diminishing tail which stretches for more than 100 times the distance illustrated here.[1]

CHART II

DISTRIBUTION OF LIQUID ASSET HOLDINGS



[1] The chart shows the distribution of those with assets of less than £150. Those with assets of £150 and over, who are about a third of the total, are distributed in a long tail stretching to the right.

It is clear from a comparison of Chart 2 with Chart 1 that liquid assets are far more unequally distributed than incomes. This is reflected in the fact that the top 10 per cent of liquid asset holders, who are those with more than £500 each, hold between them some three-quarters of the total.

The average liquid asset holding of income units owning assets is estimated at £325, from which we compute an estimated total for all income units in private households of about £5,000 million. In view of the widely dispersed nature of the distribution this estimate is not very accurate: the standard error is probably of the order of 10 per cent.

There seems little doubt that the volume of liquid assets in private hands is a factor influencing spending and saving; but much depends on what sort of people hold the assets and in what proportions. One broad fact that emerges at this stage is the high degree of concentration of ownership of liquid assets. A full examination of the structure of asset holdings and of the distribution of assets amongst different sections of the population will be made in the third paper of this series.

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[1] The occasional irregularities in the distribution, as for example the clusters occurring in the groups immediately above £50 and £100, may reflect a real tendency for people to keep a round sum of this sort as a more or less permanent reserve; but it may also be due to people reporting rounded sums when in fact the amounts are more randomly distributed.

Personal Saving

Table 5 shows the percentage distribution of income units according to their total saving in the year 1951–52; and the estimated number of income units who saved or dissaved various amounts. The personal saving of each income unit is made up of a number of different components : the net change in liquid asset holdings; net change in other assets and liabilities; premiums paid for life assurance; contributions to pension funds; repayments of mortgages. Each component was measured directly and the total obtained by summation.

TABLE 5

Distribution of Total Personal Saving
(Income units in private households in Great Britain, 1951–52)

Amount saved or dissaved in 1951–52	*Percent of income units* %	*Estimated number of income units*[1] *'000*
Saved :		
£200 and over	2.2	500
£100—199	2.7	600
£50—99	6.1	1,400
£25—49	9.6	2,200
£1—24...	33.8	7,700
No saving or dissaving	13.3	3,000
Dissaved :		
£1—24...	12.0	2,700
£25—49	6.6	1,500
£50—99	4.6	1,000
£100—199	3.3	800
£200 and over	2.6	600
Not ascertained	3.2	—
Total	100.0	22,000

[1] It is assumed that those whose saving was not ascertained were distributed in the same manner as those whose saving was ascertained.

A large number of income units saved a small amount each during the year : over a third saved something between £1 and £24. Many of these small amounts take the form of life assurance premiums. Amounts of £50 or over were saved by only 11 per cent of income units. On the side of dissaving, there was a smaller proportion who dissaved in a small way but about the same proportion dissaved heavily (£50 and over) as saved heavily. The average saving of all income units was about £3 15s. per income unit; which represents an aggregate personal saving by 22 million income units of about £80 million.[1]

The definition of personal saving used in the official estimates of national income embraces certain elements that are not covered by the survey—especially accrued interest on Savings Certificates and employers' contributions to pension funds. The items not covered by the survey amount to nearly £200 million in all: and the survey's estimate of £80 million is therefore equivalent to total personal saving of over £250 million on the definition of personal saving used in the official figures. A strict comparison of this estimate with the figure of £98 million shown in the national income blue book[1] is not possible because of differences in time periods and in the population covered. It is difficult to guess what may be the effect of the difference in population coverage, *i.e.*, whether the people living in non-private households are likely to save more or less than those living in private households, and whether people in Northern Ireland save more or less than people in Great Britain; but about the effect of the time-period difference there can be little doubt. The official figures refer to the calendar year 1951, the survey figures approximately to the financial year 1951–52. In the latter period the first quarter of 1951 is replaced by the first quarter of 1952, and since personal spending was at an exceptionally high level in the first quarter of 1951 it is very probable that personal saving in 1951–52 was greater than in 1951.

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[1] The standard error of this figure is estimated to be something less than £80 million.

It must be remembered, however, that neither the official figure nor the survey figure can claim any large degree of accuracy in its own right: the official figure is well-known to be ' precarious ' because of its derivation by the indirect method of subtracting estimated personal expenditure from estimated personal disposable income; the survey estimate, though obtained directly for each income unit, may be subject to biases which would make it consistently too high or too low; and it is certainly subject to sampling error. The sampling error alone is fairly large, and the estimate arrived at above for total saving by private households of £250 million is not inconsistent with a true figure for Great Britain of as little as £100 million or as much as £400 million.

The net balance of an individual person's saving in any period is the resultant of many separate acts of saving and dissaving. Some of these are purely random or seasonal fluctuations which level themselves out over the course of time. But even when we take the balance of each person's account at the end of a year, as is done in this survey, we find a very large number of people whose net balance for the year is either positive or negative. It would be interesting to know for how many people this annual change represents a long-term trend in their saving behaviour and for how many it is a purely accidental effect due, for example, to a temporary rise or fall in income or to the clustering of expenditure in a particular period, as when a car is bought in one year but will be expected to last for several years. This question will be considered further in the fourth paper of this series. Meantime it should be noted that our estimate of personal saving of £80 million is the net result of very large positive and negative amounts: people who saved during the year saved altogether £620 million, or about £50 each on the average; people who dissaved drew out £540 million, or £81 each on the average.

ACKNOWLEDGMENTS

This survey grew out of a pilot survey made in Oxford in 1951. Our ability to extend the work on a national scale is due to the generous help of the Trustees of the Nuffield Foundation, who have provided finance both for the 1952 survey and for a further one in 1953.

We have derived much benefit from the example set by the work of the Survey Research Center of the University of Michigan, whose annual Survey of Consumer Finances provides a model on which a great deal of our survey is based. The Survey Research Center have made freely available all their experience in this field and one of their staff, Dr. John B. Lansing, visited us for two months.

We were fortunate in obtaining, with the approval of the Treasury, the co-operation of the staff of the Social Survey in the detailed planning and organisation of the work; and the field work was carried out by the Social Survey's trained field workers, employed for this purpose directly by the Institute. To these field workers and to the members of the Social Survey's research staff who have made such a large contribution to the success of the project we extend our thanks; and I should like to express a personal appreciation of contributions made by Mr. D. Lamberth, Mr. T. Corlett, Mrs. M. Hayes, Miss A. Harris and Mr. J. Fothergill.

The tabulations, produced mechanically on punched card equipment, are being performed by the Tabulation Research Centre, London.

I have been assisted at the Institute of Statistics by, successively, Mr. T. I. Hardie and Mr. R. F. Dawson.

H. F. Lydall

APPENDIX

The Social Characteristics of Income Units

The tables printed in this Appendix are designed to give background information about the social characteristics of income units : their distribution by age, sex, occupation and industry; the number of persons they contain; the number of dependent children they support; and so on. These characteristics are also considered in relation to one another and to others, such as place of residence and income group. Each table shows the percentage distribution of a given characteristic in the population as a whole and within various sub-groups that are likely to show differences. In some cases the distribution of two characteristics appear in a reciprocal relation : for example, the distribution of Age of Head by Sex of Head, which occurs in Appendix Table 1, shows the proportion of the male heads who are 18 to 24, while the distribution of Sex of Head by Age of Head in Appendix Table 2, shows the proportion of those aged 18 to 24 who are males.

A study of these tables, in addition to being of interest for its own sake, assists in the interpretation of the various analyses that will be made in this series of papers. It is clear, to take examples at random, that most of the retired and unoccupied are aged 65 and over; that most of the 18 to 24's are single persons; and that a large proportion of the ' clerical and sales ' are females. Some of the relationships are obvious; others not so. In any case, empirical verification of the judgements of commonsense is useful, and the measurement of the actual size of the various proportions is necessary for the proper interpretation of the economic data obtained in the survey.

The following notes and definitions will help to explain the terms employed :

Age of Head

In the case of a married couple this is the age of the husband.

Sex of Head

All married couples have male heads. Income units with female heads are single, divorced, separated or widowed women. Some of them have dependent children.

Occupation of Head

The occupation of the head was recorded in as much detail as possible. Later the forms were coded and occupations were classified according to the following criteria.

Occupation Group	*Definition or description of types of occupations included*
Self-employed.	Employers and those in business or professional practice on their own account, including farmers.
Managers and technical.	Managers, professional, administrative and technical employees, and senior office supervisors; works foremen but not shop foremen or charge-hands.
Clerical and sales.	Office workers (including lesser office supervisors), shop assistants and lesser shop supervisors, salesmen, inspectors.
Skilled manual.	Persons engaged on work which requires special training, or acquired skill, or responsibility for a process or operation; includes shop foremen and charge-hands; also semi-skilled improvers and apprentices.
Unskilled manual.	Persons whose occupation could be performed without vocational training, acquired skills or any considerable degree of knowledge.
Retired and unoccupied.	All not gainfully occupied, including housewives, students and unemployed.

The difficult task of dividing manual workers into skilled and unskilled categories was performed with the help of a special code book designed by the Social Survey. The division is inevitably somewhat arbitrary.

Industry of Head

Industries were grouped, on the basis of the *Standard Industrial Classification*, as follows :

Industry Group	*Order Nos.*
Agriculture, horticulture and fishing	1
Mining and quarrying	2
Manufacture—metal and engineering	5—9
Manufacture—other	3, 4, 10–16
Building and contracting	17
Gas, water and electricity	18
Transport and communications	19
Distribution	20
Professional, financial and other services	21, 23, 24
Public administration and defence	22

Number of Dependent Children

Dependent children are defined as children of under 18 who do not go out to work.

Position in the Household

A household consists of a group of people who live in the same dwelling and share in the same housekeeping unit. ' Boarders,' who receive one or more meals a day from the housewife, form part of the household. ' Lodgers,' who rent accommodation but do their own cooking, are counted as separate households.

The head of the household is the head of the income unit which owns or rents the accommodation, *i.e.*, the primary income unit. Other income units—relations, boarders or employees forming part of the household—are secondary income units.

Region

The standard regions of the Registrar-General were grouped as follows

Group	*Standard Regions*
Scotland.	Scotland.
North of England.	Northern. East and West Ridings. North Western
Midlands and Wales	North Midland. Midland. Wales.
South of England	Eastern. London and South Eastern. Southern. South Western.

Size of Town

The conurbations are those defined by the Central Statistical Office. A list of the administrative areas embraced by them is given in *Census* 1951, *One Per Cent Sample Tables, Part I*, p. xvii.

The other urban areas are County and other Boroughs and Urban Districts in England and Wales, and Cities and Burghs in Scotland, apart from those included in conurbations.

Rural areas are Rural Districts in England and Wales and Landward Areas in Scotland, apart from one of two included in conurbations.

Number in Sample

This refers to the number of income units of the various types actually obtained in the sample. Since the sample included a disproportionate number of income units from larger houses, and also because of certain variations in the response rate between areas, the proportion of units of any particular type in the sample may differ from the estimated proportion of such units in the population. The population estimates are obtained by weighting the sample results so as to compensate for variations in the effective sampling rates.

Symbols Employed

— = nil. * = less than a half of one per cent.

APPENDIX TABLE 1

Age of Head of Income Unit
(percentage distribution)

Type of income unit	*Age of head*						*All*	*Number in sample*
	18–24	*25–34*	*35–44*	*45–54*	*55–64*	*65 and over*		
All income units ...	12	18	19	19	14	18	100	2598
Sex of head								
Male	9	21	22	20	14	14	100	1918
Female	21	10	9	16	16	28	100	680
Occupation of head ...								
Self-employed ...	*	12	26	31	19	12	100	230
Managers and technical	3	24	29	25	17	2	100	259
Clerical and sales ...	31	23	20	15	10	1	100	330
Skilled manual ...	15	26	23	21	11	4	100	807
Unskilled manual ...	14	16	20	25	18	7	100	388
Retired and unoccupied	3	3	3	8	18	65	100	571
Position in household								
Head of household ...	1	16	22	23	18	20	100	1919
Younger relative ...	52	27	12	7	1	1	100	519
Older relative... ...	—	2	1	1	13	83	100	85
Boarder	25	24	6	7	21	17	100	38
Employee	23	12	8	21	21	15	100	37
Total income								
Under £200	20	5	5	7	14	49	100	608
£200—399	18	20	17	19	15	11	100	813
£400—599	4	26	27	24	15	4	100	636
£600—999	4	25	31	25	12	3	100	346
£1000 and over ...	—	7	26	37	17	13	100	195

Appendix Table 2

Sex of Head of Income Unit
(percentage distribution)

Type of income unit	*Sex of head*		*All*	*Number in sample*
	Male	*Female*		
All income units	75	25	100	2598
Age of head				
18—24...	58	42	100	296
25—34...	87	13	100	456
35—44...	88	12	100	492
45—54...	79	21	100	499
55—64...	74	26	100	382
65 and over	60	40	100	473
Occupation of head				
Self-employed	90	10	100	230
Managers and technical	87	13	100	259
Clerical and sales	60	40	100	330
Skilled manual	93	7	100	807
Unskilled manual	76	24	100	388
Retired and unoccupied	45	55	100	571
Industry of head				
Agriculture, horticulture and fishing	91	9	100	109
Mining and quarrying	99	1	100	89
Manufacture—metals and engineering	93	7	100	299
Manufacture—other	78	22	100	342
Building and contracting	98	2	100	156
Gas, water and electricity ...	96	4	100	42
Transport and communications ...	93	7	100	192
Distribution	74	26	100	238
Professional, financial and other services	62	38	100	385
Public administration and defence...	82	18	100	129
Retired and unoccupied	45	55	100	571
Position in household				
Head of household	83	17	100	1919
Younger relative	57	43	100	519
Older relative...	33	67	100	85
Boarder	77	23	100	38
Employee	15	85	100	37
Total income				
Under £200	38	62	100	608
£200—399	76	24	100	813
£400—599	96	4	100	636
£600—999	97	3	100	346
£1000 and over	98	2	100	195

Appendix Table 3

Occupation of Head of Income Unit (percentage distribution)

Type of income unit	*Occupation of head*						*All*	*Number in sample*
	Self-employed	*Managers and technical*	*Clerical & sales*	*Skilled manual*	*Unskilled manual*	*Retired & unoccupied*		
All income units	6	6	12	37	17	22	100	2598
Region ...								
Scotland	6	4	9	40	21	20	100	317
North of England ...	6	4	11	39	14	26	100	612
Midlands and Wales ...	6	7	10	43	15	19	100	532
South of England ...	7	8	14	31	19	21	100	1137
Size of town								
Conurbation	5	7	14	36	18	20	100	964
Other urban	6	5	12	37	17	23	100	1167
Rural	11	6	8	40	16	19	100	467
Industry of head:								
Agriculture, horticulture and fishing	28	3	1	32	36	—	100	109
Mining and quarrying ...	—	1	1	79	19	—	100	89
Manufacture—metals and engineering	3	8	7	71	11	—	100	299
Manufacture—other ...	2	6	6	61	25	—	100	342
Building and contracting	11	5	4	62	18	—	100	156
Gas, water and electricity	—	2	14	39	45	—	100	42
Transport and communications	3	3	15	46	33	—	100	192
Distribution	25	3	54	11	7	—	100	238
Professional, financial and other services	13	25	18	19	25	—	100	385
Public administration and defence	—	14	31	26	29	—	100	129

Appendix Table 4

Industry of Head of Income Unit (percentage distribution)

Industry	*All income units*	*Regions*			
		Scotland	*North of England*	*Midlands and Wales*	*South of England*
Agriculture, horticulture and fishing ...	4	3	3	5	5
Mining and quarrying	4	2	7	9	*
Manufacture—metal and engineering ...	13	11	11	18	11
Manufacture—other	14	19	16	10	14
Building and contracting	6	9	6	6	6
Gas, water and electricity	2	1	2	2	2
Transport and communications	9	10	7	7	10
Distribution	8	8	10	8	8
Professional, financial and other services...	11	11	7	11	14
Public administration and defence ...	5	5	4	4	7
Unclassified	2	1	1	1	2
Retired and unoccupied	22	20	26	19	21
All income units	100	100	100	100	100
Number in sample	2598	317	612	532	1137

APPENDIX TABLE 5

Number of Persons in the Income Unit
(percentage distribution)

Type of income unit	*Number of persons in income unit*						*All*	*Number in sample*
	One	*Two*	*Three*	*Four*	*Five*	*Six or more*		
All income units	37	27	17	12	5	2	100	2598
Age of head								
18—24	89	7	3	1	*	—	100	296
25—34	28	15	29	18	7	3	100	456
35—44	14	16	27	26	9	8	100	492
45—54	20	31	23	16	7	3	100	499
55—64	32	56	8	2	2	*	100	382
65 and over	56	41	3	*	—	—	100	473
Sex of head								
Male	21	34	21	15	6	3	100	1918
Female	88	7	3	1	1	—	100	680
Occupation of head								
Self-employed	14	39	27	14	4	2	100	230
Managers and technical	18	25	25	21	8	3	100	259
Clerical and sales... ...	52	21	12	11	3	1	100	330
Skilled manual	25	27	22	16	6	4	100	807
Unskilled manual ...	37	27	15	11	7	3	100	388
Retired and unoccupied...	62	31	4	1	1	1	100	571
Total income								
Under £200	78	20	2	*	*	—	100	608
£200—399...	42	25	18	10	4	1	100	813
£400—599...	11	34	21	22	7	5	100	636
£600—999...	7	31	29	17	9	7	100	346
£1,000 and over	6	45	25	15	8	1	100	195
Position in household ...								
Head of household ...	19	35	21	15	6	4	100	1919
Younger relative ...	87	6	5	2	*	—	100	519
Older relative	96	4	—	—	—	—	100	85
Boarder	96	4	—	—	—	—	100	38
Employee	95	5	—	—	—	—	100	37

APPENDIX TABLE 6

Number of Dependent Children in Income Unit
(percentage distribution)

Type of income unit	*Number of dependent children*					*All*	*Number in sample*
	None	*One*	*Two*	*Three*	*Four or more*		
All income units	65	17	12	4	2	100	2598
Age of head							
18—24	95	4	1	*	—	100	296
25—34	41	29	20	7	3	100	456
35—44	30	28	26	10	6	100	492
45—54	54	25	14	5	2	100	499
55—64	92	6	1	1	*	100	382
65 and over ...	98	2	*	—	—	100	473
Sex of head							
Male	57	21	14	5	3	100	1918
Female	90	6	3	1	*	100	680
Occupation of head							
Self-employed ...	57	25	13	4	1	100	230
Managers and technical ...	44	25	20	8	3	100	259
Clerical and sales ...	71	14	12	2	1	100	330
Skilled manual ...	53	23	15	6	3	100	807
Unskilled manual ...	65	16	11	5	3	100	388
Retired and unoccupied ...	91	5	2	1	1	100	571
Total income							
Under £200 ...	95	4	1	*	—	100	608
£200—399	67	18	10	4	1	100	813
£400—599 ...	47	22	21	6	4	100	636
£600—999	42	29	15	9	5	100	346
£1000 and over ...	55	23	13	8	1	100	195

APPENDIX TABLE 7

Position of Income Unit in the Household
(percentage distribution)

Type of income unit	*Heads of households (primary units)*	*Secondary units*				*All*	*Number in sample*
		Younger relatives	*Older relatives*	*Boarders*	*Employees*		
All income units ...	74	21	3	1	1	100	2598
Age of head ...							
18—24	8	88	—	3	1	100	296
25—34	67	31	*	2	*	100	456
35—44	86	13	*	1	*	100	492
45—54	91	8	*	*	1	100	499
55—64	92	2	3	2	1	100	382
65 and over ...	83	2	13	1	1	100	473
Sex of head							
Male	81	16	1	2	*	100	1918
Female	52	37	8	1	2	100	680
Occupation of head							
Self-employed ...	93	5	1	1	—	100	230
Managers and technical ...	87	11	—	2	—	100	259
Clerical and sales ...	50	47	1	2	—	100	330
Skilled manual ...	74	23	1	2	*	100	807
Unskilled manual ...	71	24	1	1	3	100	388
Retired and unoccupied ...	80	7	11	2	*	100	571
Total income							
Under £200 ...	59	28	10	1	2	100	608
£200—399	66	31	1	2	*	100	813
£400—599	89	10	—	1	*	100	636
£600—999	91	8	*	1	—	100	346
£1000 and over ...	98	2	*	—	—	100	195

THE PARADOXES OF 1952

INTRODUCTION

Economic developments in 1952 have been, on the face of it, very difficult to reconcile. The figures in the trade returns had certainly not prepared us for a surplus in the balance of payments, and this surplus seems, in any case, hard to reconcile with falling industrial production, particularly if one takes into account rising expenditure on rearmament and the increased rate of building, whilst living standards have not greatly fallen. Moreover the fall in industrial production seems to have had surprisingly little effect on employment.

The major economic changes can be summed up in the following table showing progress over the four quarters of 1951 and the first two quarters of 1952 :—

	1951				1952	
	I	II	III	IV	I	II
Balance of Payments[1] (£m.) ...	—71		—394		+24 (Prov)	
Value of Building work (£m.) ...	323	347	364	371	381	397
Personal Consumption (£m.) ...	2330	2460	2520	2580	2410	2570
Index of Industrial Production (1948=100)	118	120	112[2]	119	120	112
Total in employment[3] (m.) ...	23.0	23.1	23.2	23.2	23.0	23.0

The purpose of this paper is to examine first the technical paradox : how can one reconcile the trade returns with the balance of payments ? Secondly, we shall try to account for the maintenance of employment. Thirdly, we shall try to reconcile the apparently inconsistent changes in the volume of output on the one hand, and in the uses of output on the other.

(1) THE BALANCE OF PAYMENTS

The trade returns had indicated a mild improvement of £185m. in our visible deficit, but the Balance of Payments White Paper shows an improvement of £359m., almost eliminating the deficit. If we ask ourselves why the two sources show such different developments, we find that the Board of Trade figures suggest both a smaller reduction in imports and a smaller increase in exports than the White Paper shows for the first six months.[4] Let us look at these differences in turn.

IMPORTS

On the basis of figures for 1950 and 1951 we would have expected imports in the White Paper to be about a tenth lower than those shown in the trade returns, largely because the former are valued f.o.b., whilst the latter are valued c.i.f. (*i.e.* including insurance and freight charges). Actually for the first half of 1952, f.o.b. imports were much lower than we would have expected, in fact about a sixth lower than the c.i.f. imports. The relation between them has moved as follows :—

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[1] Excluding defence aid.

[2] This series is not seasonally corrected, and the fall in the third quarter can largely be attributed to the effect of holidays in that quarter.

[3] Total in civil employment plus H.M. Forces.

[4] We should certainly have estimated a deficit in the balance of payments for the six months by applying our usual adjustments to the trade returns. Fortunately for us, the National Income Blue Book appeared so late that, before we had prepared our estimates of national income components for each quarter, the Balance of Payments White Paper had been published.

Imports (c.i.f.) in the trade returns as percentage of imports (f.o.b.) in the White Paper for each half-year

1949		1950		1951		1952
I	II	I	II	I	II	I
117	114	112	110	113	111	119

Since there was no sharp rise in shipping freights early in 1952, the apparent jump in the margin for insurance and freight is very hard to understand, and comment on the White Paper's estimates has been confused. The truth is partly that the size of the rise in the ' c.i.f. margin ' is a statistical illusion, and partly that the actual rise, which is much smaller, can be explained without invoking a hypothetical and unlikely increase in freight rates.

The statistical illusion arises as follows. The trade returns show actual arrivals of imports,[1] whilst the White Paper's estimates refer to change of ownership; and, in the White Paper's words, 'it is known that, for a large proportion of U.K. imports, this change in ownership occurs in the country of origin (either before or at shipment)'. Suppose that a consignment is purchased abroad by British buyers in June, and arrives at a United Kingdom port in July : then it will be included in White Paper's estimates for the first half year, but it will not appear as an ' import ' in the trade returns until July. The trade returns for the first half-year refer to goods which actually changed ownership in the period (say) December–May. Now in a period of falling imports, this collection of goods which *arrive* in January–June will be larger than those which *change hands* in January–June (and arrive in the period February–July), because the arrivals in July will be less than those in January. The White Paper's estimates of imports for the first half-year refer therefore to a *later* collection, and thus a *lower* collection, than do the trade returns for the first half-year. A comparison of estimates from the two sources will therefore show a ' c.i.f. margin ' which is greater than the actual margin on the goods covered by the White Paper's estimates.

It is hard to say how long the average delay is between change of ownership and arrival in the U.K. About half our imports come from Africa, Asia or Australia, and the delay for them must be at least a month; about a quarter come from Europe, on which the delay can only be a matter of days; and about a quarter come from America, with a delay of a fortnight or so. The average delay is therefore hardly likely to be less than a fortnight or more than a month. If we take three weeks, and compare the White Paper's estimates with arrivals of imports three weeks later, obtained from the trade returns by interpolation, we get the following estimates :

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[1] This is not strictly quite exact. The notes to the Trade and Navigation Accounts say that ' particulars in respect of imported goods are allowed to be given by importers or their agents at any time within 14 working days after the arrival of the ship . . . Such particulars may also be accepted before a ship actually arrives.' But this is hardly likely to be an important discrepancy in practice.

Imports (c.i.f.) in the trade returns lagged 3 weeks, as percentage of imports (f.o.b.) in the White Paper

1949		1950		1951		1952
I	II	I	II	I	II	I
117	115	111	114	115	111	116

The margin for the first half of 1952 no longer looks very different from other recent margins.

Can we explain the fluctuations in the margin which are still left after allowing for a lag ? Since insurance rates are based on the value of the cargo, and in any case are relatively small, the explanation must be sought in changes in shipping charges. Different sorts of imports have very different margins, and the average margin will be raised if, *ceteris paribus*, there are more imports which are heavy, bulky, or from a distance. An imported commodity which costs little per ton (f.o.b.), but comes a long way, may have a c.i.f. margin of over 100 per cent : on precious metals from the Continent it may only be 1 or 2 per cent. The composition of imports does of course change considerably, but these changes will not affect the average c.i.f. margin much unless they are predominantly towards heaviness, bulk or long hauls (or, of course, towards lightness, etc.). The most important single influence on the margin will, therefore, usually be general changes in freight rates. But these will not affect the percentage margin so long as they are matched by corresponding changes in f.o.b. prices. What would change the margin would be a change in shipping rates *relative to commodity prices*.

In 1949–50, import prices tended to rise more rapidly than freight rates, which may have fallen, thus reducing the margin. But at the end of 1950 tramp freights, and then liner freights, rose sharply, more rapidly than import prices, thus raising the margin—which will also have been increased by imports of coal from the United States. The fall in 1951 is more difficult to explain. Import prices were on average a little higher than for the first half of the year, but there does not appear to have been a general decline in shipping freights, so here the answer must be sought in changes in composition. One explanation is that the average haul was shorter : imports from the sterling area, and especially from Australia, fell sharply—only 33 per cent by value coming from the sterling area in the second six months, compared to 39 per cent in the first. Another reason is that imports of coal and of steel scrap fell abruptly, while there were more purchases of goods which are expensive (per ton), such as machinery. This year the composition has changed back to the early–1951 pattern, with 38 per cent being imported from the sterling area, and less coming from Europe and America. There were also more bulky imports of iron ore, pig iron and steel. Moreover, although import prices fell in the spring, there can hardly have been a comparable fall in shipping freights, despite the weakening of the tramp market; total shipping payments and receipts for the half-year were both maintained, despite the fall in the total volume of trade. Yet if import prices fall relative to freights, the c.i.f. margin rises.

But we have nearly fallen into the trap of mistaking an official estimate for a fact: it must be very difficult for the authors of the White Paper to decide when ownership does change. All the White Paper says about the methods used is: ‘these figures of the overseas transactions of the United Kingdom are derived from Exchange Control and other sources.’ In as far as the authors rely on Exchange Control data, *i.e.* on information about *payments*, they may not be allowing fully for changes in the period between payment and transfer of ownership. This period does notoriously fluctuate with violence, because of speculation about the value of sterling—and such speculative factors may therefore be influencing the ‘c.i.f. margin’ as derived above. Alternatively, if the authors rely on U.K. trade statistics, they will have to make assumptions about delays in shipment and about changes in the c.i.f. margin: we may in fact have been partly or wholly unravelling the assumptions of civil servants rather than discussing objective data—and there are no means of finding out.

EXPORTS

A similar problem of discrepancy between the two sources arises in the case of exports. If we add re-exports to the Board of Trade's totals for exports we get the following results:—

Exports in the trade returns as percentage of exports in the White Paper

1949		1950		1951		1952
I	II	I	II	I	II	I
101	102	102	101	100	100	94

Those who took exports in the trade accounts as an approximation to the White Paper's figures under-estimated exports for the first half of 1952, and were thus further misled in their expectation of what balance of payments would be revealed.

To start with, there are similar differences of timing. In the White Papers, exports are credited to us ‘so far as possible’ when they change ownership, and ‘the transfer of ownership is assumed to take place on or after arrival in foreign ports.’ For exports, therefore, the discrepancy works the other way: ‘exports’ appearing in the trade returns for June probably do not appear as ‘exports’ in the Balance of Payments White Paper for the first half of the year, because few of them will have arrived at their destination. During a period of falling exports, since the White Paper refers to an *earlier* collection of goods than do the trade returns for the half year, it refers to a *larger* collection. When exports are falling, therefore, the trade returns show a smaller total than does the White Paper. The time between passage through United Kingdom ports and change of ownership is almost certainly greater than in the case of imports, because a larger proportion of exports travels a long distance. Despite the partial collapse of the pre-war ‘triangular’ trade patterns, the sterling area supplied 36 per cent of our imports in 1951, but took 49 per cent of our exports. Using 5 weeks as an approximate estimate for the delay, and comparing the two sets of estimates once more, we get:

Exports in the trade returns brought forward 5 weeks, as percentage of exports in the White Paper

1949		1950		1951		1952
I	II	I	II	I	II	I
101	100	99	99	98	99	96

Once more the discrepancy between the two documents is lessened by allowing for the difference in the periods covered. But the discrepancy which remains is still rather puzzling, especially since the two sources had tallied so well in the past, though with a slight tendency for the gap to widen. We do not pretend to be able to explain it away, but we can suggest two possible explanations. The first is that the difference may still be a statistical illusion, since it may be due to variations in the delay between the time when the Board of Trade records a consignment as exported and the time when the Treasury records it as changing hands. In particular the sharp fall in exports to Australia may have reduced the average delay, so that a higher proportion of May and June shipments may have changed ownership (according to the Treasury) before the end of June than is assumed in these calculations. Secondly, there may have been substantial exports in categories not recorded in the trade returns, and which would have to be worth something of the order of £30–50 millions. Of the various possibilities here, the most plausible would seem to be either second-hand ships or goods (such as fissionable materials) which are excluded on security grounds.[1] Both these explanations may be correct, so that together they account for the remaining difference. But there is of course still a third possibility : this discrepancy too may be, at least partially, due to the techniques used by the authors of the White Paper. We are told that the basis of valuation is change of ownership ' so far as possible ', but we do not know how far that is.

On the basis of this interpretation, the trade returns were used to provide for each quarter estimates of imports and exports consistent with the White Paper's estimates (see Table I).

The Invisible Balance

Part of the reason for the unexpected success of the first half of 1952 was that there was an improvement in ' invisible ' trade, as well as a greater improvement in the ' visible ' balance than had been anticipated. The ' invisible ' surplus was £108m. in the first half of 1952, compared with £49m. in the second half of 1951. There was some slight recovery in ' other (net) ' receipts, (which may have had something to do with the accounts of Anglo-Iranian); and shipping receipts also, rather surprisingly, rose. Travel expenditure fell sharply, and was for the first six months actually less than travel receipts from foreigners in the U.K., yielding us a surplus on ' travel' account, doubtless the first for decades. This improvement[2] is partly due to

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[1] *Vide* Maizels. J.R.S.S. 1949, p. 210. Such differences in coverage may also have been responsible for part of the discrepancy between estimates of imports, but they seem less likely to have affected that comparison.

[2] From the viewpoint of the statistician, not the tourist.

Table I. *National Balance of Payments at Current Prices, NOT Seasonally Corrected (£ millions at annual rates)*

	1949	1950				*1950*	1951				*1951*	1952	
	Year	I	II	III	IV	*Year*	I	II	III	IV	*Year*	I	II
1. Visible imports f.o.b. ...	*1,974*	2,170	2,500	2,240	2,620	*2,372*	2,960	3,630	3,830	3,550	*3,494*	3,340	3,070
2. Invisible imports	*581*	560	550	600	540	*563*	640	690	880	950	*789*	830	830
3. Total payments	*2,555*	2,730	3,050	2,840	3,160	*2,935*	3,600	4,320	4,710	4,500	*4,283*	4,170	3,900
4. Metal products	*880*	980	1,040	1,100	1,090	*1,050*	1,110	1,190	1,190	1,270	*1,190*	1,340	1,430
5. Manufactured textiles ...	*360*	350	380	400	470	*400*	500	570	550	550	*540*	480	410
6. Other exports	*580*	690	710	790	900	*780*	880	990	1,000	1,060	*990*	1,160	1,240
7. Visible exports	*1,820*	2,020	2,130	2,290	2,460	*2,226*	2,490	2,750	2,740	2,880	*2,715*	2,980	3,080
8. Invisible exports	*741*	850	950	1,020	1,050	*967*	1,180	1,210	1,170	850	*1,103*	1,020	1,070
9. Total receipts	*2,561*	2,870	3,080	3,310	3,510	*3,193*	3,670	3,960	3,910	3,730	*3,818*	4,000	4,150
10. Surplus (+) or Deficit (—)	*+6*	+140	+30	+470	+350	*+258*	+70	—360	—800	—770	*—465*	—170	+250

Table II. *National Balance of Payments at Current Prices, Seasonally Corrected (£ millions at annual rates)*

	1949	1950				*1950*	1951				*1951*	1952	
	Year	I	II	III	IV	*Year*	I	II	III	IV	*Year*	I	II
1. Visible imports f.o.b. ...	*1,974*	2,220	2,370	2,300	2,660	*2,372*	3,030	3,470	3,910	3,580	*3,494*	3,410	2,920
2. Invisible imports	*581*	580	560	540	580	*563*	710	750	850	850	*789*	890	880
3. Total payments	*2,555*	2,800	2,930	2,840	3,240	*2,935*	3,740	4,220	4,760	4,430	*4,283*	4,300	3,800
4. Visible exports	*1,820*	2,020	2,130	2,290	2,460	*2,226*	2,490	2,750	2,740	2,880	*2;715*	2,980	3,080
5. Invisible exports	*741*	860	940	1,000	1,070	*967*	1,190	1,200	1,150	870	*1,103*	1,030	1,060
6. Total receipts	*2,561*	2,880	3,070	3,290	3,530	*3,193*	3,680	3,950	3,890	3,750	*3,818*	4,010	4,140
7. Surplus (+) or deficit (—)	*+6*	+80	+140	+450	+290	*+258*	—60	—270	—870	—680	*—465*	—290	+340

the further reduction in tourist allowances, but also to a customary seasonal decline which affects payments more than receipts. Finally, there was a sharp fall of £29m. in payments of ' interest, profits and dividends ', largely because £39m. interest on the American and Canadian loans had been paid in the second half of 1951, whilst no instalments fell due in the first half of 1952.

We get a better picture of trends if we remove such seasonal fluctuations. Table II attempts to do this, by adjusting for regular seasonal influences, so far as they can be discerned, and by spreading interest on American and Canadian loans over each quarter (including the two quarters of 1952) on the grounds that the liability arises continuously. After such allowances have been made, it appears that there was no improvement in the ' invisible ' surplus, which was running at an annual rate of £160m. in both the second half of 1951 and the first half of 1952.[1] We can conclude therefore that a further cause of the surprisingly good balance of payments was that there were improvements in the ' invisible ' balance, which were however largely seasonal—particularly the absence of an instalment of loan interest. Another instalment will be payable in the latter half of this year.

The explanation of this first paradox is therefore that conventions of the White Paper greatly improve the appearance of the visible balance during a period of declining trade, and also that the improvement in the ' invisible ' balance was seasonal rather than lasting.

(2) Production and Employment

The second and apparently paradoxical development in the first half of this year was that a substantial fall in the domestic product from 1951 levels was not associated with a corresponding fall in employment. The factors influencing output and employment in various sectors of the economy have been very diverse, so that no ' overall ' explanation is legitimate. We shall approach the problem through an examination of the changes in output which have taken place.

In Table III we show changes in the real gross domestic product[2] since 1948.[3] It is immediately evident that the domestic product of the British economy is closely geared to changes in industrial output.[4] Industrial output accounted for about one-half of gross domestic product in 1948. This proportion increased in the years which followed. Of an increase in gross domestic product (at 1948 factor cost) between 1948 and 1951 of some

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[1] Seasonal correction of imports partly offsets the effects of correcting ' invisible ' trade in this way, because of the seasonal peak of imports in the second quarter—but only partly.

[2] Gross real national product would be equal to gross real domestic product *plus* net real income from abroad, but in contrast to our earlier sets of estimates we do not now attempt to show net income from abroad in ' real ' terms. The practical (and conceptual) difficulties of deriving this series are such that our estimates could only have a very limited significance.

[3] See technical notes for a description of the indicators used to derive the estimates shown.

[4] We use ' industrial output ' to cover the output of industries included in the Index of Industrial Production : that is, mining and quarrying ; manufacturing ; building and contracting ; and gas, electricity and water.

TABLE III

Gross Domestic Product at 1948 factor cost, Seasonally Corrected
(£ millions at annual rates)

Sector	1948 Year	1949 Year	1950 Year	1951 I	1951 II	1951 III	1951 IV	1951 Year	1952 I	1952 II
Mining and quarrying	385	395	400	415	415	410	415	415	415	415
Manufacturing	3,770	4,035	4,370	4,500	4,600	4,585	4,520	4,550	4,520	4,330
Building and contracting...	640	670	670	670	620	660	650	650	665	630
Gas, electricity and water	200	210	230	240	250	250	240	245	245	240
Agriculture, forestry and fishing ...	610	640	620	5,375	5,345	5,345	5,340	630	5,370	5,325
Transport and communication	845	875	900					925		
Distributive trades...	1,275	1,305	1,365					1,350		
Public administration and defence ...	735	705	675					715		
Other services	1,720	1,690	1,735					1,735		
Gross domestic product	10,175	10,525	10,965	11,200	11,230	11,250	11,165	11,215	11,215	10,940

TABLE IV

Product of manufacturing industries at 1948 factor cost, Seasonally Corrected
(£ millions at annual rates)

Industry	1948 Year	1949 Year	1950 I	1950 II	1950 III	1950 IV	1950 Year	1951 I	1951 II	1951 III	1951 IV	1951 Year	1952 I	1952 II
Metals, engineering and vehicles ...	1,790	1,900	2,010	1,980	2,050	2,170	2,055	2,150	2,180	2,225	2,220	2,195	2,255	2,175
Textiles and clothing	575	625	665	665	675	690	675	695	705	665	600	665	590	530
Food, drink and tobacco	495	515	515	550	545	510	530	510	515	530	525	520	530	540
Other manufacturing industries ...	910	995	1,070	1,115	1,125	1,145	1,110	1,145	1,200	1,165	1,175	1,170	1,145	1,085
Total, manufacturing industries ...	3,770	4,035	4,260	4,310	4,395	4,515	4,370	4,500	4,600	4,585	4,520	4,550	4,520	4,330

£1,000 million, more than £850 million was due to the industrial sector. Further, we should note that a part of the output of the transport and communication sector, and a smaller part of the output of the distributive and ‘ other services ’ sectors, are also linked to changes in the output of industry. Outside industry itself, and activities ancillary to industry, changes in output have probably been small.[1]

The quarterly figures imply that the whole of the increase in domestic product between 1950 and 1951 had in fact occurred by the end of 1950; and the astonishingly stable ‘ plateau of 1951 ’ (which we noted in our quarterly estimates during 1951) was maintained into the first quarter of 1952, and was followed by a sharp fall in the second quarter. The plateau and subsequent fall in the domestic product mirrored a similar movement of industrial output : and within the industrial sector the key to these changes must be sought in manufacturing industry, since the changes in the output of other industries were relatively small.

MANUFACTURING OUTPUT

In Table IV we have broken down the manufacturing sector into four main groups of industries.[2] In 1950, the output of all four groups increased steadily, continuing the trends of the two previous years. After the second quarter of 1951, however, the output of the textile and clothing industries declined very rapidly under the impact of a buyers’ strike at home and a decline in overseas demand for their products. This decline continued into the first half of 1952, and by the second quarter output was running below 1948 levels. Changes in textile and clothing output were quite sharp enough to have an appreciable effect on the total output of manufacturing industries. Meanwhile, the output of the metal and metal-using industries was no longer increasing rapidly, even though demand for most products was strong. A patchy supply of steel-making materials clipped back supplies of steel in 1951 below the 1950 level, despite a drawing down of stocks. And, even though steel stocks were reduced, a shortage of steel hampered an increase in the output of metal-using industries. Further, a continuing change-over to defence orders must have had some disrupting effect on the flow of output. In the second quarter of 1952 there was some easing of the steel shortage : but there was also a weakening demand for some products, particularly in export markets. ‘Food, drink, and tobacco’ output shows little change over this period, but the output of ‘ other manufacturing industries’ fell sharply in 1952. The output of the paper and printing industry, and of wood and cork manufactures, was particularly low in the second quarter of 1952, and even the output of chemicals was running below 1951 levels.

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[1] The indicators which we use for changes in non-industrial output are crude and unsatisfactory, so that our estimates may exaggerate the gearing of domestic product to industrial output. However, the fairly close correspondence between our annual estimates and the careful estimates of Adams and Reddaway (see technical notes in Appendix I) suggests that our errors may not be large.

[2] See technical notes for a description of the method used to achieve this breakdown.

Given this decline in 1952 of the domestic product, and of manufacturing output in particular, we now have to explain why the fall in employment was so slight. One possibility, which we examine in the next section, is that there was a redistribution of employment away from industries with a high output per head towards industries with a low output per head : in which case we would expect the fall in product to be greater than the fall in employment. The other possibility is that output per person employed has fallen, and we shall examine changes in output per person in the last section of this part.

THE PATTERN OF EMPLOYMENT

From 1948 to mid-1951 there was an increase in the total working population, accompanied by a decline in the numbers unemployed and some fall in the strength of the Armed Forces. Consequently, there was a substantial increase in civil employment, and particularly in industrial employment. Within industry, employment in mining and quarrying fell, and there was little change in the numbers employed in building and contracting. Manufacturing employment, however, increased sharply, and was running at about 7 per cent above the 1948 level.

Employment changes, June 1951–June 1952
Thousands

H.M. Forces	+ 45	Agriculture	— 19	Metals, engineering & vehicles	+ 93
Civil employment	—168	Mining	+ 18	Textiles & clothing	—216
Unemployed	+116	Manufacturing	—191	Food, drink & tobacco	+ 15
Working population	— 7	Building & contracting	— 21	Other manufacturing	— 93
		Gas, electricity & water	+ 6	Manufacturing	—191
		Other civil employment	+ 39		
		Civil employment	—168		
Males	+ 43	Males	— 53	Males	— 21
Females	— 50	Females	—115	Females	—170
Working population	— 7	Civil employment	—168	Manufacturing	—191

Between mid-1951 and mid-1952 (as is shown by the table) the pattern of changes since 1948 was to some extent reversed. Employment in manufacturing fell, though the magnitude of the decline in textile and 'other manufacturing' employment was partly masked by an increased employment in the metal, engineering, and vehicle industries. The fall in textile employment was particularly sharp. From a level more than 10 per cent above 1948 in the first half of 1951, textile employment fell slowly at first, and then more rapidly as the slump deepened. By the second quarter of 1952, textile employment was running below 1948 levels. The whole of the increase in employment in metals, engineering and vehicles occurred in the second half of 1951, and these industries absorbed no further labour in the first half of 1952.

Outside manufacturing, there was some increase in non-industrial employment (chiefly in transport and communications, and in professional, financial and miscellaneous services.) There was also an increase (concentrated largely in the first half of 1952) in the mining and quarrying labour force. In this industry the wastage of labour below 1948 levels in 1950 and 1951 had become serious : but by the second quarter of 1952 employment had practically regained the 1948 level. Employment in the Armed Forces also increased, and as the working population was practically unchanged, unemployment only increased by just over 100,000—about ½ of 1 per cent of the working population.

Thus one reason for the comparatively modest decline in employment which we noted at the beginning of this paper is that falls in employment in certain industries and agriculture, totalling 350,000 over the year, were to a large extent offset by an increase in employment elsewhere in the economy. But what effect did these changes in employment have on the domestic product ? *Prima facie*, a decline in employment might be expected to reduce the national product more than proportionately when it is concentrated in manufacturing, since it represents a loss of labour with a high output per head. This would help explain the paradox because a large fall in the national product could occur without such a large fall in employment. But it must be noted that the decline in manufacturing employment was to a great extent a decline in *female* employment (chiefly, of course, female textile workers) whose net output per head must be lower than the national average. And it must further be noted that the increases in employment which partly offset the falls in employment in some manufacturing industries were not by any means concentrated in low output-per-head sectors : thus the largest increase in employment over this period occurred in the 'metals, engineering, and vehicles' industries. Although it is difficult to analyse the effect of the changed pattern of employment precisely, it is unlikely that this was a significant factor in the explanation of our paradox. Indeed, since both the decline of female employment, and the growth of employment in 'metals, engineering, and vehicles', would tend to be associated with a *higher* ratio of output to employment, the changes in employment over this period make the paradox more acute.

Output per Person Employed

We must therefore examine changes in output per person employed. In Table V we bring the trends in output and employment together. Our indices of output per man in employment are obtained by dividing indices of output by indices of employment in the various industries. There was no single explanation of the decline in output : and so there is no single explanation for the decline in output per man employed, which was particularly marked in the second quarter of this year. In any analysis of these figures, it is important to note that each individual employed is counted as one unit, so that they do not reflect any changes in hours worked. And between

TABLE V

Indices of output per person employed, seasonally corrected
1948=100

Industry	*1949*	*1950*	*1951*	1st *half 1951*	2nd *half 1951*	1st *qtr. 1952*	2nd *qtr. 1952*
All industries	105	110	111	111½	111	111	106½
Mining and quarrying	103½	107	110½	110	111	110	108½
Manufacturing	105	111	112½	113½	112½	112	108½
Gas, electricity and water ...	101	102	106	106½	105½	105½	103½
Building and contracting ...	106	107	103	103	103½	107½	99½
Manufacturing industries ...	105	111	112½	113½	112½	112	108½
Metals, engineering and vehicles	106	112½	116½	116	117½	117½	113½
Textiles and clothing	104½	108	106½	111	102½	100	94
Food, drink and tobacco ...	98½	97½	93	93½	93	96	97
Other manufacturing industries	105½	115	117½	118½	117	114½	111½

mid-1951 and mid-1952, changes in hours have been substantial. In the firms which replied to the enquiries of the Ministry of Labour and National Service in June 1951, nearly 10 million hours of overtime were worked in a week, and less than ½ million hours were lost through short-time. In a week in May 1952, nearly 9 million hours of overtime were reported, but the hours lost through short-time working had risen to over 5 million. As would be expected, the most substantial changes were reported by textile and clothing firms: in June 1951, overtime exceeded short-time by over ½ million hours a week, whereas in May 1952, short-time exceeded overtime by more than 4 million hours a week. Since persons working short-time will be included in the total employed in the industry, the figures we show will exaggerate any decline in output *per man-hour* in textiles. To some extent, therefore, our figures reflect an understandable desire on the part of textile employers to minimise their loss of labour in the face of a decline in demand which was not considered permanent. The change in hours worked was less important for other industries: for example, there was over this period little change in the balance of overtime worked in the 'metal, engineering, and vehicle' industries.

And even in textiles the fall in hours worked was not, in itself, sufficient to account for the whole of the decline in output per person employed. A complaint of the textile industries during this slump was that such orders as did come through were for relatively small lots of particular products, so that the more economic working on longer runs was not possible. In the metal-using trades, too, the uncertainty of supplies must have hampered the most effective employment of the labour force: and doubtless defence orders contributed to some dislocation of production. The decline in output per man employed in mining and quarrying must at least partly reflect the time-lag between the absorption of labour and its fully productive employment.

There is thus a complex of factors involved in an analysis of changes in real domestic product relative to changes in employment. Over the period

1951–52, it appears that the changes in employment which occurred could not have contributed to this changed relationship, but that the fall in output per person in employment was sharp, particularly in some industries. Given a rapid fall in output, it is in any case likely that there will be a time lag before the labour force is adjusted to lower levels of output.[1] And if the fall in output is considered to be temporary—if supplies of materials, or demand for products, are expected to improve—employers will tend to minimise (especially through short-time working) the impact of the fall in output on the numbers employed. Further, the circumstances surrounding a fall in output may be such that labour is used less efficiently. Our analysis suggests that these were the factors lying behind the paradoxical relationship of product and employment in 1951–52.

(3) National Output and National Expenditure

We have shown how and why domestic output in the first half of 1952 fell lower than at any time since the Korean War started. The fall in the second quarter is particularly noticeable : yet the second quarter saw a sharp improvement in the balance of payments—even in the trade returns—and (presumably) the highest level of rearmament so far. We come now to the central paradox of 1952 : how could output have been so low, and yet so much apparently have been achieved ?

The Volume of Trade

We have already seen that a small part of the answer is a seasonal improvement in the balance of payments. Another part is the improvement in the terms of trade. In order to show the effects of this, we give (in Table VI) estimates of the domestic balance of payments (excluding interest, profits and dividends from both sides) at average-1948 prices. These estimates show that, but for the adverse turn in the terms of trade after 1948, we should have a surplus in 1951, even before taking net property income into account. The terms of trade have now swung back in our favour—though not to the 1948 ratio—and the improvement in 1952 is not nearly so marked if we work in fixed prices. Net property income hardly changed if we allow for seasonal influences, so we can compare the balances in Table II and VI : this comparison suggests nearly half of the improvement between the second half of 1951 and the first half of 1952 was due to better terms of trade,[2] without which we should still have had a large deficit in the first half of 1952, taken as a whole.

Secondly, Table VI shows that in so far as fluctuations in our balance have been due to ' real ' changes, they have been attributable very much

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[1] Similarly, when employment increases, there is likely to be a time lag between the absorption of labour and an increase in output.

[2] We are working in 1948 prices : if we made the comparison in the higher prices of 1951, the real improvement would seem greater, and the improvement attributable to the terms of trade slightly less.

TABLE VI

Domestic Balance of Payments at 1948 Prices, Seasonally Corrected
(£ millions at annual rates)

	1949	*1950*				*1950*	*1951*				*1951*	*1952*	
	Year	I	II	III	IV	*Year*	I	II	III	IV	*Year*	I	II
1. Visible Imports (f.o.b.)...	*1,930*	1,960	2,040	1,940	2,060	*2,000*	2,060	2,230	2,490	2,310	*2,270*	2,200	1,900
2. Invisible Imports[1] ...	*510*	450	420	400	410	*420*	410	420	470	470	*440*	490	480
3. Total Payments[1] ...	*2,440*	2,410	2,460	2,340	2,470	*2,420*	2,470	2,650	2,960	2,780	*2,710*	2,690	2,380
4. Metal products	*850*	930	970	1,020	1,000	*980*	990	1,030	980	1,010	*1,000*	1,030	1,050
5. Manufactured textiles ...	*340*	330	350	360	410	*370*	410	420	370	360	*380*	320	280
6. Other exports	*580*	670	690	720	830	*720*	770	790	780	840	*800*	870	930
7. Visible Exports	*1,770*	1,930	2,010	2,100	2,240	*2,070*	2,170	2,240	2,130	2,210	*2,180*	2,220	2,260
8. Invisible Exports[1] ...	*560*	650	720	730	760	*710*	790	770	720	480	*690*	600	640
9. Total Receipts[1]	*2,330*	2,580	2,730	2,830	3,000	*2,780*	2,960	3,010	2,850	2,690	*2,870*	2,820	2,900
10. Surplus (+)[1] ... ... or deficit (—)[1]	*—110*	+170	+270	+490	+530	*+360*	+490	+360	—110	—90	*+160*	+130	+520

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[1] Excluding interest, profits and dividends.

more to changes in the volume of imports, which rose in 1951 and fell in 1952, than to changes in the volume of exports. The violent swings of our balance of payments have been due largely to the fact that movements in the terms of trade and import volumes have worked together; in 1951 they both made the balance of payments worse, and in 1952 they both improved it.[1]

The volume of retained imports has moved as follows[2] :—

(1948 = 100)

	1950	*1951*				*1951*	*1952*	
	Year	I	II	III	IV	*Year*	I	II
Food, drink, tobacco ...	*104*	108	122	120	113	*116*	114	107
Raw materials	*118*	124	131	154	151	*139*	127	125
Manufactures	*109*	118	143	142	132	*134*	127	112
Total	*109*	114	128	133	128	*126*	120	112

Raw materials were particularly conspicuous in the 1951 increase, but this rise was concentrated in comparatively few commodities : aluminium, nickel, softwood and wood pulp, oil, and rubber. Imports of cotton, timber, hides and rubber fell in 1952, but imports of wool stayed at much the same level, and imports of aluminium, nickel and oil continued to rise. These divergent movements reflect the rise in engineering output and the fall in textile output shown in Table IV, and are a further consequence of the switch from consumers' goods to arms.

From the present point of view the improvement of the terms of trade has brought a bigger improvement in the balance of payments than the mere changes in quantities traded would have otherwise achieved—but there were nevertheless big reductions in imports, and we still have to explain how, in a period when less was imported and less was produced at home, more goods could have been used in exports and in rearmament.

CONSUMPTION

The most obvious explanation would be a reduction in consumption. Actually in one way the published consumption figures show a rather misleadingly low rise in 1952. The first quarter is normally the worst for trade in nearly every commodity, except fuel and light, and entertainments (see Appendix II). Correcting for these seasonal declines we obtain the results of Table VII, which suggest that expenditure in the first two quarters of 1952 was well above that of any quarter previously. However, this is true only so long as we are working in current prices. Table VIII shows the effect of removing price changes, and working in 1948 prices throughout. Purchases by consumers rose steadily to a peak early in 1951 and then fell back to the lowest levels for three years, from which they then made some slight recovery. Most of this fluctuation is due to purchases of 'clothing'—and must be reflected in corresponding changes in consumers' wardrobes.[1] 'Household goods' failed to make their usual seasonal recovery in the second quarter, and quantities bought were even lower than in the previous autumn. Consumption of other commodities continued to run at the same levels, or rather higher.

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[1] It is curious how our heavy purchases have been made at times when prices have been high—especially since our own demands do not have an overwhelming influence on material prices. Superficially it seems that we have a negative elasticity of demand, and wait for high prices before coming into the market.

[2] These are based on Board of Trade figures, and therefore refer to slightly earlier purchases than the figures in the Balance of Payments White Paper.

Taken as a whole, the improvement since the second half of 1951 in real consumption, in the sense of purchases valued at fixed prices, increases the difficulty of reconciling the fall in production with the improvement in the balance of payments.

CHANGES IN STOCKS

We have now exhausted the list of items on which we can get authoritative information. If we compare the first half of 1952 with the second half of 1951, after removing seasonal influences, we can express the core of the paradox as the problem of reconciling the following movements :[2]

(£ millions of 1948 prices, at annual rates)	£m.
Gross Domestic Product	—130
Imports	—335
Exports	+ 90
Consumption	+125
Rearmament	+ ?

Altogether the goods and services currently available (domestic product *plus* imports) fell by nearly £500m. at annual rates.[3] Yet goods and services used in consumption and exports rose by over £200m. Moreover goods and services used by public authorities as a whole must have risen, if one allows for the acceleration of military expenditure, because social expenditure can have dropped little by mid-1952, if indeed it had dropped at all. These developments are only explicable if there has been a very substantial fall in the rate of investment, totalling in fact the best part of £1,000m. per annum.

We no longer feel able even to attempt to estimate Government expenditure in each quarter, and for the quarterly estimates of Table IX we show a joint residual item for Government expenditure and total capital formation. The great fall in this residual does however reveal the answer to this problem, for investment in stocks is the only component that can vary so greatly from quarter to quarter. Fixed capital formation was running at about £1,5000m. in 1951 and can hardly have declined by enough to offset the accelerating rise in Government expenditure due to rearmament. Table III shows that building, the largest single component, has continued at much the same level, and although there may have been a fall in investment in machinery—

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[1] A 'true' current expenditure for consumers would probably reveal little fall in 1951, or rise in 1952, if we could measure the actual use of consumers' goods, in the sort of way suggested by Irving Fisher, and exclude changes in consumers' stcoks.

[2] Our main intention in making these series of estimates is to provide a framework within which the changes in official series can be compared, and their joint implications examined.

[3] This is in 1948 prices, as are all figures henceforward.

TABLE VII. *Personal Consumption at Current Prices, Seasonally Corrected (£ millions at annual rates)*

	1949	1950				*1950*	1951				*1951*	1952	
	Year					*Year*					*Year*		
		I	II	III	IV		I	II	III	IV		I	II
1. Food	*2,417*	2,590	2,625	2,580	2,705	*2,627*	2,820	2,825	2,885	2,930	*2,867*	3,150	3,220
2. Beer...	*502*	500	490	500	495	*497*	495	535	535	550	*530*	550	585
3. Other Drink	*222*	220	225	250	250	*237*	300	250	240	250	*258*	265	230
4. Tobacco	*754*	750	760	770	785	*767*	795	795	790	825	*801*	830	805
5. Rent and Rates	*659*	670	675	680	685	*677*	685	705	705	710	*701*	710	730
6. Fuel and Light	*345*	345	370	375	385	*370*	380	440	435	410	*414*	415	460
7. Household goods	*596*	640	640	685	730	*675*	820	775	680	690	*741*	735	665
8. Footwear	*170*	170	170	175	185	*174*	190	195	170	175	*185*	185	180
9. Clothing	*782*	800	795	850	870	*831*	985	860	775	820	*861*	815	815
10. Travel	*348*	345	340	340	345	*345*	365	355	370	375	*365*	385	380
11. Entertainments	*174*	175	170	180	170	*175*	180	175	185	185	*181*	190	175
12. Other goods and services	*1,779*	1,765	1,795	1,855	1,835	*1,815*	1,945	1,955	2,020	1,980	*1,976*	2,020	2,030
13. Total	*8,748*	8,970	9,055	9,240	9,440	*9,190*	9,960	9,865	9,790	9,900	*9,880*	10,250	10,275

TABLE VIII. *Personal Consumption at 1948 Prices, Seasonally Corrected (£ millions at annual rates)*

	1949	1950				*1950*	1951				*1951*	1952	
	Year					*Year*	*Year*				*Year*		
		I	II	III	IV		I	II	III	IV		I	II
1. Food	*2,324*	2,375	2,375	2,335	2,415	*2,376*	2,450	2,400	2,285	2,315	*2,364*	2,380	2,405
2. Beer...	*501*	495	495	500	495	*497*	490	495	490	505	*495*	475	500
3. Other Drink	*220*	220	225	225	250	*238*	295	245	230	245	*256*	265	225
4. Tobacco	*741*	735	745	745	755	*746*	765	770	760	785	*769*	795	770
5. Rent and Rates	*656*	660	665	670	670	*666*	670	675	675	680	*676*	680	685
6. Fuel and Light	*339*	340	350	355	370	*356*	355	380	375	360	*368*	355	365
7. Household Goods ...	*587*	625	620	655	680	*646*	715	640	555	550	*615*	590	545
8. Footwear	*175*	180	180	180	185	*179*	165	155	160	130	*155*	145	140
9. Clothing	*734*	750	745	780	785	*766*	855	705	615	640	*702*	655	670
10. Travel	*348*	345	340	335	335	*341*	350	340	350	355	*348*	350	335
11. Entertainment	*174*	175	170	180	170	*175*	175	175	180	175	*176*	180	165
12. Other goods and services	*1,722*	1,665	1,700	1,725	1,715	*1,698*	1,770	1,720	1,740	1,670	*1,727*	1,705	1,710
Total	*8,521*	8,565	8,610	8,685	8,825	*8,684*	9,055	8,700	8,415	8,410	*8,651*	8,575	8,515

some fall was intended—it can hardly have been on this scale. We can only guess at the magnitudes of these items: our impression is that the total of Government expenditure and fixed capital formation may have been rising gradually from about £3,550m. early in 1951 to something of the order of £3,650m. at the end of 1951 and £3,700m. in the middle of 1952. These are admittedly speculative figures, but our argument does not depend on them being correct. The point is that movements in these two items cannot explain, even to a small degree, the enormous fall in the residual line of Table IX, which must therefore be due to a fall in the remaining item: investment in stocks.

Table IX implies the following movement in stocks. The first quarter of 1951 showed a big fall; in the second quarter, gains only slightly outweighed losses; but in the third and fourth quarters there were substantial net gains, so that stocks rose by about £350m. in the year. There was still on balance an increase in stocks in the first quarter of 1952, but a sharp fall in the second. The explanation of the central paradox is therefore that we were running down stocks rapidly in the second quarter, and this meant a very big fall in total investment, because it followed a period of heavy stockbuilding.

Attributing the explanation to a fall in stocks may seem surprising, in view of recent Government statements about improvements in stocks. Let us look a little more closely at the clues on stock changes. The table of import volumes shows that in late 1951 imports of raw materials, more than 50 per cent above 1948 levels, were outpacing the production index, which was only 17 per cent above the average of 1948. This is the more surprising in that the composition of output has changed away from the goods, such as textiles, with a high import content. It implies that much more was being imported than was currently needed. In 1952 the ratio of material imports to industrial production was still higher than in 1948, suggesting a continued increase in raw material stocks, Government or private (or both), especially in military materials. This is borne out by the available information on stocks of individual materials in 1952, large rises having occurred in zinc, newsprint, sulphur and pyrites, and smaller rises for nearly all materials.[1] Stocks of home-produced materials also rose: steel stocks recovered from the very low levels of 1951, and pig iron stocks ceased to fall, while there was a rise in coal stocks, which usually fall, in the first six months of the year.

The Government statements about increases in stocks have referred only to such rises in material stocks. They have therefore been rather misleading.[2] The increase in material stocks seems to have slowed down and nearly all other stocks have fallen.

There have been great reductions in distributors' stocks of textiles. Early in 1951, textile purchases both by foreign buyers and by the home public, in anticipation of price rises ('Buy now'), were pressing hard on supplies.

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[1] Board of Trade Journal, 11–10–52, p. 674.

[2] The Lord Privy Seal in fact alleged that changes in work-in-progress were 'irrelevant to the balance of payments question' (Official Report, 11–11–52, col. 895).

TABLE IX

Gross Domestic Expenditure at 1948 Prices, Seasonally Corrected
(£ millions at annual rates)

	1948 Year	1949 Year	1950 Year	1951 I	1951 II	1951 III	1951 IV	1951 Year	1952 I	1952 II
1. Gross Domestic Product at 1948 factor cost (from Table III) ...	10,175	10,525	10,965	11,200	11,230	11,250	11,165	11,215	11,215	10,940
2. Net Indirect Taxes at 1948 Rates ...	1,465	1,435	1,460	1,520	1,485	1,475	1,495	1,500	1,495	1,450
3. Gross Domestic Product at 1948 Market Prices	11,640	11,960	12,425	12,720	12,715	12,725	12,660	12,715	12,710	12,390
4. Statistical Discrepancy	—	—5	—80	(+55)	(+55)	(+55)	(+55)	+55	(+55)	(+55)
5. Gross Domestic Expenditure at 1948 Market Prices	11,640	11,955	12,345	12,775	12,770	12,780	12,715	12,770	12,765	12,445
6. Personal Consumption (from Table VIII)	8,390	8,520	8,685	9,055	8,700	8,415	8,410	8,650	8,575	8,515
7. Exports of Goods and Services (from Table VI)	1,960	2,330	2,780	2,960	3,010	2,850	2,690	2,870	2,820	2,900
8. *Less* Imports of Goods and Services (from Table VI)	—2,195	—2,440	—2,420	—2,470	—2,650	—2,960	—2,780	—2,710	—2,690	—2,380
9. Public Authorities' Current Expenditure	1,830	1,950	1,915	(3,230)	(3.710)	(4,475)	(4,895)	2,060	(4,060)	(3,410)
10. Gross Domestic Capital Formation ...										
(*a*) Fixed Capital	1,465	1,550	1,575					1,540		
(*b*) Stocks	195	45	—190					360		
11. Gross Domestic Expenditure ...	11,640	11,955	12,345	12,775	12,770	12,780	12,715	12,770	12,765	12,445

Stocks fell and production was forced up to post-war record levels, continuing at a high rate after consumption had started to decline in the second quarter. Wholesale and retail stocks then rose embarrassingly in the summer, and buying orders fell, causing output to decline continuously for more than a year (see Table IV). Home purchases of clothing are shown by Table VIII to have been recovering early in 1952, and stocks started to fall. Changes in the Board of Trade statistics of distributive stocks are difficult to interpret because they refer to values (at cost), not physical quantities, and because of seasonal variation, but they seem to bear out this conclusion. Stocks of wholesale textile houses usually fall in the second half of the year and rise in the first half. In 1951 they rose by nearly 20 per cent in the second half of the year, whilst they fell to their original levels in the first half of 1952. Clothing and footwear stocks of large retailers did rise in the first half of 1952, but by less than is customary after the Christmas decline. Statistics of retail stocks of other merchandise are even harder to interpret, but it seems (if one allows for seasonal fluctuations) that stocks of furniture, electrical goods, stationery and jewellery, were also reduced in the first half of the year. There was in fact a rise in distributive stocks in the second half of 1951 and a fall in the first half of 1952, consistent with the implications of Table IX.

Secondly, the fall in the level of activity must have reduced work-in-progress. Total stocks and work-in-progress in manufacturing at the end of 1951 were nearly £4,000m.,[1] of which a large proportion must have been work-in-progress plus goods awaiting delivery to final buyers.[2] Work-in-progress and stocks of finished goods, taken together, probably change less than proportionately to output, but even so they may have fallen during the first half of 1952 by over £100m., so that the *annual rate* of fall may have averaged more than £200m.

Thirdly, there must have been substantial falls in goods-in-shipment. The first part of this article showed that the Balance of Payments White Paper, by valuing imports and exports (roughly) when they passed through foreign ports, gave a much more favourable picture than the statistics of trade through U.K. ports. Imports and exports have both fallen this year, but departures of imports from foreign ports fell more than did arrivals of imports here, and arrivals of exports abroad had hardly begun to fall by the end of June.

The reader must be feeling—and rightly—that our balance of payments cannot be improved simply by valuing trade flows at the foreign end of their journey, instead of at this end. The catch in this procedure is that, during a period of falling trade, the balance of payments is improved at the expense of capital formation. Since goods are treated as belonging to the United Kingdom when they are in shipment, a fall in exports will show itself in the first place as a fall in stocks. Similarly, as purchases overseas fall, there will be a reduction in imports-in-shipment before fewer imports flow through U.K. ports.

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[1] National Income Blue Book, p. 91.

[2] Mr. Vice of The Queen's College has drawn our attention to the estimate quoted by Zentler (Economica, 1950, p. 409) that work-in-progress and finished goods form 60 per cent of manufacturers' stocks in the United States. The estimate is apparently based on the official sample of inventories. This is a small sample, but it is considered reliable by those who collect the data. The British proportion might tend to be higher (other things, such as industrial composition, being equal), because the greater degree of standardisation in the United States permits continuous production processes and necessitates fewer stock rooms in the factories. Tinbergen's assumptions ('Business Cycles in the U.K., 1870-1914' Nieuw Reeks Deel LVII, No. 4, p. 90), imply a figure much higher than 60 per cent.

There would be a strong case for arguing that the balance of trade shown in the trade returns (but converted to an f.o.b. valuation) is really more interesting than the balance of trade shown in the White Paper. An improvement in the balance which is accompanied by a reduction of stocks on the seas is a somewhat deceptive improvement. When trade stops declining the improvement will, *ceteris paribus*, disappear. Now that trade has apparently entered a more unstable period, changes in the balance of payments, on the official definition, will become difficult to interpret. So long as exports and imports continue to fall, the White Paper will continue to give a misleadingly favourable picture; but, if there is no net fall in a half-year, the basis of valuation will matter little; and if either exports or imports increase in a half-year the balance of payments will look more unfavourable than it perhaps ought to look, because there will be an increase in stocks-in-shipment, which will again cease when trade levels out. When reading the White Paper one has to look not only at *whether* the surplus has improved but also at *how* it has improved. If the White Paper shows an improvement in the balance primarily due to a further fall in imports, the improvement will be overstated, but if it is primarily due to a rise in exports it will be understated—and *mutatis mutandis* for a deterioration.

We can estimate roughly the order of magnitude of the change in goods-in-shipment, for it is the difference between the balance of payments as shown in the White Paper and the balance of payments one would get if one estimated it from the trade returns, without allowance for time-lags. The deficit in visible trade in 1951 would have been much the same, if one had measured trade at its passage through U.K. ports, but in the first six months of 1952 it would have been about £100m. greater, and there would have been a large deficit in the balance of payments if it were defined in this way. Changes in goods-in-shipment therefore amounted in the first six months to a running down of stocks at an annual rate of about £200m. at current prices —rather less at 1948 prices.

So despite the rise in material stocks, a violent change in stockbuilding is the explanation of our paradox. If we compare the 'best' and the 'worst' quarters since mid-1951, the change in the annual rate of investment in stocks from the fourth quarter of 1951 to the second quarter of 1952 must have been something of the order of £1,500m.—from about £1,200m. rise in stocks in 1951 IV, to about £300m. fall in stocks in 1952 II. The fall in 1952 is largely attributable to falls in distributive stocks, work-in-progress and goods-in-shipment, these falls outweighing the continued, but slower, rise in stocks of materials *in the United Kingdom.*

* * * * *

We have therefore been able to offer explanations of the three paradoxes. The conventions of the Balance of Payments White Paper largely explain the unexpected payments surplus; the reduction in hours worked and the fall in output per hour, explain the continued high levels of employment despite the fall in output; and the violent swings in stock accumulation, from building up material and retail stocks to running down retail stocks, work-in-progress and stocks on the seas, aided by better terms of trade and a seasonal improvement in invisible transactions, explain how we managed to balance our payments, maintain living standards and rearm, even though output fell.

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APPENDIX I

TECHNICAL NOTES

It will be noticed that we no longer attempt to estimate the national product at current prices. We no longer feel such an estimate worthwhile. It used to be built up from estimates of the value of each sector's output, and these were usually obtained by inflating a quantity series by a price index. Last year we tried to follow the C.S.O.'s definitions by valuing output net of stock appreciation. We could make some attempt at producing quarterly estimates on this basis for the manufacturing sector, because the ' input ' prices available allowed us to value materials at current replacement cost, *i.e.* to exclude ' stock appreciation '. But for estimating the value added in distribution we had in effect to assume that profit margins, net of stock appreciation, were a constant proportion of turnover. Now since many distributors use ' first-in-first-out ' methods of pricing withdrawals from stock, profit margins net of stock appreciation are *not* likely to be constant. In fact they have fluctuated greatly over the past two years, because of the sharp changes in material prices and because distributors' costs are high relative to profits. Consequently our estimates of the national product at current prices have been misleading, and we have abandoned—at least for the present—the attempt at such estimates.

Table I. National Balance of Payments at current prices, NOT seasonally corrected.

The derivation of this table is mostly explained in the first part of the text. Separate figures are shown for the main categories of exports : these estimates are taken directly from the trade returns, the 5-week time-lag being assumed to be applicable to all three categories. The estimates of ' metal products ' and ' manufactured textiles ' contain no allowance for any discrepancy between this source and the White Paper, so discrepancies due to differences of coverage (such as are discussed in the text) will affect the ' other exports ' series. We attributed ' invisible ' items to each quarter as well as we could.

Table II. National Balance of Payments at current prices, seasonally corrected.

Techniques of seasonal correction are discussed in the Appendix II. We would only emphasise here that no attempt has been made to correct for the seasonal fluctuation in visible exports : after exports have been lagged no clear seasonal pattern remains.

Table III. Gross Domestic Product at 1948 *factor cost, seasonally corrected.*

Figures for 1948 were derived from Table 9 of the National Income ' Blue Book ' roughly adjusted so as to remove ' stock appreciation '. Estimates for subsequent years were obtained by applying indicators of real net output in the several sectors to the value added in 1948. For non-industrial sectors the indicators available are so crude that separate series are not shown quarterly.

Mining and quarrying, manufacturing, building and contracting, and gas, electricity and water.

For these sectors, we use as indicators the corresponding series in the official Index of Industrial Production.

Agriculture, forestry and fishing.

The component for agriculture has been derived from information kindly supplied by the Ministry of Agriculture and Fisheries.

Transport and communications.

Personal expenditure on travel, seasonally corrected and at constant prices, is used as an indicator of passenger transport. For freight transport we assume that the amount of freight carried varies in proportion to industrial output, as shown in the Index of Industrial Production.

Distributive trades.

Since the great majority of the output of this sector is the wholesale or retail distribution of goods entering into personal consumption, our main indicator here is personal expenditure on consumption at constant prices, seasonally corrected. To take account of changes in distribution of industrial materials and intermediate products we also use (with a weight of one-fifth) an indicator of changes in industrial output.

Public administration and defence.

Lacking a more satisfactory indicator of the output of this sector, we have assumed that output changed in proportion to changes in employment. Our assumption implies that ' productivity ' in this sector does not change even if the composition of employment changes.

Other services.

This mixed bag covers items 8, 11, 12, 13, and 14 in Table 9 of the Blue Book. For all services except the ownership of dwellings we use employment indicators : the series of employment in ' Professional, financial and miscellaneous services ' shown in the Monthly Digest has a very similar coverage. We have assumed that the real income imputed to dwelling ownership increases slowly as more dwellings become available.

Gross domestic product.

Our estimates of annual changes in the real gross domestic product since 1948 can be compared with those of Adams and Reddaway.[1]

Indices of real domestic product, 1948–1951

Source	1948	1949	1950	1951
L.C.E.S.	100	104.6	108.8	111.5
Table III	100	103.4	107.8	110.2

Apart from a fairly sharp divergence between 1948 and 1949, our series moves very closely with that of the L.C.E.S. As between the two, the L.C.E.S. index is without doubt to be preferred to our own. For annual changes, the L.C.E.S. calculation is made in great detail, using a very large number of indicators which are not available for shorter period comparisons. Our annual estimates are not prepared for their own sake : they are essentially a by-product of an estimating procedure designed to show up any significant changes from one quarter to another, and the indicators we use for non-industrial output are particularly crude and incomplete. It is therefore encouraging to find that the divergences between the two estimates are relatively small.

Table IV. Product of manufacturing industries at 1948 *factor cost.*

The division of the 1948 manufacturing product into the main industry groups (which is not shown in the Blue Book) was based on the weights used in the revised Index of Industrial Production. These weights are proportionate to the net output of each industry, as derived from the 1948 Census of Production. There is one difficulty however; net output according to the Census is gross of stock appreciation, and no mention of any adjustment for stock appreciation is made in the notes on the construction of the Index.[2]

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[1] London and Cambridge Economic Service, *The Times Review of Industry*, September, 1952.

[2] Studies in Official Statistics, No. 2, C.S.O., October, 1952.

So although the Index weights should be net of stock appreciation to be consistent with the Blue Book's definitions[1] we have had to assume that they are gross of stock appreciation, and we therefore make a rough adjustment to exclude stock appreciation from the 1948 weights. Estimates for subsequent years are derived by applying seasonally corrected production index numbers to the value added in 1948.

' Other manufacturing industries ' cover the following series in the Index of Industrial Production : non-metalliferous mining manufactures; chemicals and allied trades; leather, leather goods and fur; manufactures of wood and cork; paper and printing; as well as the Index series of ' other manufacturing industries '.

Table V. Indices of output per person employed in industry, 1948–52.

These index numbers are derived by dividing the (seasonally corrected) production indices by indices of employment in the various industries. Index numbers of employment which we derive are subject to error, because when employment statistics are revised, only selected earlier figures are corrected. Any attempt to derive a continuous series must therefore rely largely on interpolations between revised figures. A particular difficulty is that the reclassification of employment between industries early this year was not applied to estimates before June 1950. Averages for 1948 were obtained by linking old and new employment series.

Table VI. Domestic Balance of Payments at 1948 *prices.*

In order to value visible imports and exports at 1948 prices they were deflated by ' average value ' indices, the indices being first converted to a 1948 base and adjusted for differences of period (see the first section of the text), the lagging being undertaken with the help of the monthly ' price ' indices. In the case of imports, c.i.f. values were deflated, and then the 1948 c.i.f. margin subtracted. For the categories of exports, the ' average value ' indices were taken from the Board of Trade Journal. The ' other ' category implicitly includes re-exports, and since it is a residual it may be affected by errors in other series, such as the discrepancies arising between values of trade and ' average value ' deflators, due to interpolation.

Shipping payments and receipts were each deflated by an index of shipping freights constructed by comparing the value of total shipping transactions with the total volume of trade. The difficulty about the comparison is not only that length of haul varies, but also that much of shipping ' receipts' (perhaps a third) are for cross-voyages, and that much of shipping ' payments' represent overseas payments of U.K. shipping companies—on fuel, canal dues, port dues, etc.—rather than payments to foreigners for shipping services (*Vide* M. G. Kendall, J.R.S.S., 1950, pp. 22 *et seq*). But there seems to be no other method of deflation.

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[1] If changes in the value of stocks in 1948 were fairly evenly spread over industry, errors in the weights will be negligible. If, however, the stocks of some industries appreciated in the base year very much more than the stocks of other industries, the weights allocated to those industries will be inflated relatively to the weights allocated to other industries, and index numbers derived from a combination of series will to that extent provide an inaccurate measure of changes in net output as defined in the Blue Book.

Other payments were deflated by the average value index for imports, as the only general index of foreign prices for tourist or Government oversea expenditure. Travel receipts were deflated by the index obtained by comparing consumption at current prices with consumption at 1948 prices. Other receipts were deflated by the wage-rate index, since a 'stickier' index was needed for what are largely exports of services. We obtain a larger increase in 'real exports' than the Blue Book does (p. 13); this may be partly due to the fact that a 1950-weighted index will magnify the effect of the relative decline in textiles—our index is actually 1947-weighted—but it also seems certain that the C.S.O. is assuming a larger rise in the price of invisible exports.

We have omitted from this table both receipts and payments of interest, profits and dividends, largely because it is difficult to value them at 1948 prices in any way which carries meaning: in any case, they are omitted from the domestic product too, so that they are not involved in any reconciliation.

Tables VII and VIII. Consumption at current, and at 1948, *prices.*

The items in these tables correspond to the items in the official estimates of consumption in the Monthly Digest of Statistics, from which they are derived. The only adjustment made is an attempt to remove seasonal influences, by methods described in Appendix II.

Table IX. Gross Domestic Expenditure at 1948 *Prices.*

The Table was constructed as follows. Gross Domestic Product was taken from Table III, but this was at 1948 factor cost: so that indirect taxes (at 1948 rates) had to be added. These were discovered by working out from the Blue Book the percentage net indirect taxes on each commodity in 1948. The percentages were then applied to the corresponding expenditures in each year or quarter subsequently, so that the indirect taxes attributable to each estimate of the domestic product could be estimated.

Meanwhile we could build up estimates of the same total in another way. Estimates of foreign trade at 1948 prices were taken from Table IV. There are already official estimates in the Blue Book of consumption and fixed capital formation at 1948 prices. There are also estimates in the Blue Book showing public authorities' current expenditure and changes in stocks, at 1950 factor cost. If we can assume that these estimates yield the same quantity index numbers as would estimates at 1948 market prices, we can obtain by simple proportions the estimates for these two items at 1948 market prices. Adding the various items we get estimates of the gross national product at 1948 market prices which can be compared with the first set of estimates.

The two sets of estimates are, of course, not identical, and the difference between them is called 'statistical discrepancy'. It is however astonishing how near they are—we can only say astonishingly lucky, because we are well aware that the errors in our deflating techniques could easily lead to discrepancies of several hundred million pounds. We should emphasise that this 'statistical discrepancy' is purely the discrepancy which arises from our ways of deflating various items, and has nothing to do with the statistical discrepancies which may have arisen in the initial construction of the Blue Book tables, but which had been disposed of by the time the tables were printed. This table goes a long way towards resolving a further paradox, how to reconcile the annual movements of total 'real' output as calculated (1) by adding industry outputs at 1948 factor costs,[1] and (2) by adding expenditures at 1950 market prices.[2] The latter seems to give a lower answer for the period 1948–51. One part of the answer is that less of the output in 1951 consisted of goods with a high tax content.[3] Another part is that the price per unit of manufacturing output[4] increased little, if at all, over the period, and therefore fell relative to prices per unit output in other sectors of the economy: productivity rises in manufacturing largely offset wage rises, which was not true in many other sectors. An index weighted with 1950 prices therefore gives a lower relative weight to the highest increases in quantity and thus yields a lower increase in real national product.[5] However, to the extent that we have over-estimated the rise in real exports (see notes to Table VI), the reconciliation is spurious.

So much for the annual estimates. For the quarters of 1951 and 1952, we assumed the same discrepancy applied as for the year 1951. This assumption enabled us to reach estimates of the Gross Domestic Product at 1948 market prices. It is of course impossible to reach this total by adding up expenditure items, because there is little on which to build quarterly estimates of the expenditure of the public authorities or of changes in stocks. The quarterly estimates of the domestic product obtained as line 5 were in fact transferred to line 11, and the total of items 9 and 10 was obtained as a residual.

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[1] *Vide* notes to Table III, which shows the increases in real output estimated by Adams and Reddaway, and by ourselves.

[2] See Blue Book, p. 13.

[3] Compare the rates of increase in lines 1 and 2.

[4] We are here considering prices net of material costs *i.e.* 'added value' per unit. The wage-bill in manufacturing rose by almost exactly the same amount as did production between 1948 and 1950, implying unchanged average labour cost per unit.

[5] Within manufacturing it is also probably true that 1950 prices gives a lower weight than do 1948 prices to the biggest increases, *e.g.* engineering.

APPENDIX II

SEASONAL CORRECTION

It is difficult to interpret economic developments without first disposing of those movements which are due to purely seasonal influences, so as to reveal the under-lying trends. The way in which this is usually done in Government statements (and much economic journalism) is to compare recent values for an economic series with the corresponding values of a year previously. This has a great disadvantage; it only reveals movements over a year, whilst we are interested here in short-period analysis, and the comparison may be very misleading if the trend has changed direction sharply during the year. (In our commentaries last year we showed, for example, how misleading such a comparison of production was for assessing the progress towards the Economic Survey's target). So we attempt to remove seasonal influences from the values for each quarter.

Two conditions in particular are necessary for seasonal correction to be successful; that the seasonal pattern should be constant, and that it should not be obscured by other influences on the variable being corrected.

Firstly, of course, the seasonal pattern is not constant, and the seasonal fluctuation we isolate is only the average seasonal fluctuation shown over a recent post-war period, generally 1948–50.[1] Thus ' seasonal correction ' consists merely of removing such an average fluctuation, and the meaning of the answer depends on how interested we are in a value which has been ' seasonally corrected ' in this way, which in turn depends largely on how closely this fluctuation is being repeated.

In the case of production, the seasonal pattern is fairly stable, being due mainly to holidays, and only in a minor degree to the weather (except for special cases such as building and the production of gas and electricity). Now that the holiday pattern has settled down,[2] it is useful to estimate what production would be if the usual effects of the period's holidays were eliminated. But in the case of consumption, the seasonality is less regular. It may depend on Christmas purchases, or conventional periods of purchasing light or heavy clothing, and such seasonal patterns are likely to be less stable than seasonal patterns of output. Thus past experience may be less useful as a guide in analysing current developments in consumption.

It is also more difficult to isolate the seasonal fluctuation of consumption series, than of production series. Production has risen steadily in most industries, because employment and productivity have risen steadily over the years 1948–50, and therefore the seasonal pattern is clearly revealed. Consumption series have been much more erratic. Consumption of some commodities has depended on the amount left over after exports have been satisfied or on the amount of imports which could be afforded, and it may also have been affected by changes in the total income or its distribution, by changes in its own price, or by changes in prices of other goods. Of these various influences, changes in the commodity's own price cause the greatest irregularities. We do however have a choice of procedure. Since regular seasonal price changes can be ignored, except for special cases such as food and fuel, we can assume that the seasonal pattern will be due only to volume changes, and that it can therefore be estimated from either ' current price ' or ' fixed price ' series. Other things being equal, our choice would depend on the elasticity of demand. If elasticity were unity, the current price series would not be affected by price changes, and it would therefore show the seasonal pattern more clearly, whilst if demand were inelastic it would be better to work with a fixed price series.

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[1] Before 1948 the data are often not available, and in any case the economy was specially affected by non-recurrent events such as the fuel crisis of 1947, sudden changes in the scope of rationing and discontinuous flows of materials. After 1950 a new set of irregularities appeared with the secondary effects of the Korean war.

[2] Except the moveable feasts which are handled by converting output data to a ' standard year ', in which Easter always falls in April and Whitsun in May.

[Food is a special case, since food prices, as well as quantities bought, vary seasonally. The sharp change in the trend in 1951, and some irregularity of pattern, make it virtually impossible to use the fixed-price series, which only starts in 1949. The period from July 1948 to June 1951 gives a current-price series with a pattern which, if not constant, is at least identifiable. The fixed-price or quantity pattern was then reached by dividing this ' value ' pattern by an index of seasonal variations in price,[1] since the seasonal pattern of 'values' must be the product of 'price' and 'quantity' seasonal influences.]

So seasonally corrected estimates for production series not only have more meaning, but also can be more accurately calculated than seasonally corrected estimates of consumers' purchases.

Seasonal Patterns of Industrial Output
Average Percentage Fluctuation from 12-month moving average, 1948–1950

Month	*All Industries*	*Mining*	*Manufacturing*	*Building*	*Utilities*	*Metals*	*Textiles*	*Food*	*Other manufacturing*
January ...	—	+ 3½	— ½	— 7½	+16½	— 1½	—	— 3	+ 2½
February ...	+ 3½	+ 5	+ 3	— 1½	+16½	+ 3½	+ 8½	— 3	+ 4
March	+ 5	+ 6	+ 5½	— 2	+ 8½	+ 6	+ 7½	+ 1	+ 5
April	— 2	— 3½	— 3	— ½	— 1½	— 3	— ½	—	— 4½
May	+ 1	+ ½	+ 1	+ 1	— 6½	+ 1	+ 1	+ 5	— 2
June	+ 2½	+ 1	+ 3½	+ 4½	—13	+ 4½	+ ½	+ 5½	+ 2
July	— 7	—10½	— 7	+ 2½	—17	— 6½	— 8½	— 6½	— 7½
August ...	—10½	—15	—10½	— 3	—17½	—12½	—12½	— 5½	— 6½
September ...	+ 1	+ 1½	+ 1½	+ 4½	—10	+ 2½	+ 3	— 5	+ 2
October ...	+ 4	+ 5	+ 3½	+ 6½	— 1	+ 2½	+ 6	+ 3	+ 5½
November ...	+ 5½	+ 6½	+ 5	+ 3	+10	+ 5	+ 5	+ 6½	+ 4½
December ...	— 2	— ½	— 2½	— 8	+15	— 1	— 9½	+ 1½	— 5

[1] A price index for 1948–51 was obtained by dividing the official estimates at 1948 prices into the estimates at current prices. and this was linked to Interim Index of Retail Prices to provide a longer series.

Consumption

	Period for Calculation		*Average percentage excess (+) or deficiency (—) due to seasonal factors in each quarter* I	II	III	IV
Food value	1948 III–51 II	(C.P.)[1]	— 5	+ ½	+ 2½	+ 2
Food volume	*	(F.P.)	— 3½	— 3½	+ 3	+ 4½
Beer	1949–51	(F.P.)	—13	—	+16	— 3
Other drink	1949–51	(F.P.)	— 8	—11	—11	+30
Tobacco	1949–51	(C.P.)	— 4½	+ ½	+ 5½	— 1½
Rent	Not corrected					
Fuel and light	1949–51	(F.P.)[2]	+19	— 7	—19	+ 7
Household goods ...	1948–50	(C.P.)	— 5	— 2	— 4½	+11½
Footwear	1948–50	(C.P.)	—19	+ 6	— 1	+14
Clothing	1948–50	(C.P.)	—13	+ 2	— 6	+17
Travel	1948–50	(C.P.)	—18	+ 3	+24	— 9
Entertainments ...	1949–51	(F.P.)	+ 3½	— 2½	+ 1½	— 2½
Other goods and services	1948 III–50 II	(C.P.)	—10	+ ½	+ 8	+ 2
Forces' income in kind...	Not corrected					

Balance of Payments

		I	II	III	IV
Visible Imports	1947 IV–1950 III	— 3	+ 5	— 1	— 1
Visible Exports	Not corrected. (After lagging exports, holiday influences were more evenly spread, and the pattern of seasonal fluctuation became too weak to be identifiable.)				

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* Obtained by dividing a price seasonal pattern (estimated for 1948 III–1951 III) into the value pattern. The price pattern was estimated as follows :—1½, +4½, —½, —2½.

[1] C.P. means that the seasonal factors were calculated from current-price data, F.P. from fixed-price data.

[2] The value pattern was estimated by making a slight adjustment for a seasonal price movement.

A ‘HUMAN NEEDS’ DIET IN NOVEMBER, 1952

The inquiry into the cost of a ‘human needs’ diet in November 1952, was of special interest, as several important changes affecting cost and supply of foods had taken place since our last survey a little more than 6 months earlier.[1] Price control had been eased over a fairly wide field and subsidies had been curtailed. The meat ration—in terms of outlay permitted per head—had gone up considerably and tea had been derationed. Seasonal changes had affected favourably the supply and the prices of the most common vegetables. In order to assess with some precision the impact of all these facts on the cost of a well balanced diet for a family with a very small income, exceptionally detailed inquiries were carried out for this present survey in several working-class parts of London as well as in a considerable number of places in the south-Midlands, during the first half of November.[2] A check-up on the figures thus obtained was taken towards the end of November. However, all the main data in this paper are based on the figures collected during the first fortnight; but some reference will be made to our findings during the later part of the month.

Already in earlier articles on the same subject we had occasion to point out that the de-rationing of certain foods and, with this, the re-awakening of competitition amongst retailers had tended to loosen up the general price structure, which under the influence of stringent rationing and price control had become somewhat fossilized. Slowly, more perceptible relationships between price and value began to re-emerge and, once again, make the price structure fluid. This process has now advanced to a noticeable extent—in spite of the fact that rationing still controls the consumption of many of the most essential foods—and the individual retailer is trying his best to impress upon the potential customer that he, rather than his near competitor, is offering the best value for money. As a result, the discriminating housewife can look out for bargains that may represent appreciable savings, especially if she has to cater for a fair sized family. Under these conditions it is often very difficult to set down a definite unit cost for any specific item. Our survey revealed that foods showing no appreciable differences in cooking could be bought at prices differing from 3 to 50 per cent, in shops that were less than 50 yards distant from one another. Frequently—though by no means always—if one food was offered at a lower price by the one retailer it was a different food that could be bought cheaper in the next shop. But even in working-class districts there are shops practically side by side, the one of which offers much better bargains than the other, and it was, indeed, often the cleanest looking shop with the most appetizing displays that was selling at the most economical prices.

In all the districts visited it was possible to purchase the weekly diet for

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[1] BULLETIN, Vol. 14, No. 6.

[2] Shops frequented by working-class housewives and market stalls were visited in: London (Paddington, Lambeth, and Bethnal Green), Abingdon, Banbury, Henley, High Wycombe, Newbury, Oxford, Reading, Slough, Witney, and Wallingford.

TABLE I

Weekly 'Human Needs' Diet for a Family of 5 Persons

	Quantity	Price per Unit[1]		Changes since April 1952		
				Quantity	*Cost*	
		s.	d.		*s.*	*d.*
(*a*) Rationed Foods :						
1 Meat	5 ℔	2	0[2]	+1 ℔ 11 oz.	*+4*	*2*
2 Bacon	1 ℔ 9 oz.	3	2	...	+	*3¼*
3 Margarine	2 ℔ 3 oz.	1	4	...	+	*4½*
4 Cooking Fat	10 oz.	1	6	...	+	*1¼*
5 Sugar	3 ℔ 2 oz.		7	...	+	*3¼*
6 Cheese	5 oz.	2	2	...	+	*0¾*
7 Eggs	5 eggs		4½	— 5 eggs	*—1*	*10½*
Cost of Group (*a*)		*23*	*2½*		*+3*	*4½*
(*b*) Fresh Milk :						
8*a* Ordinary	18 pt.		6½	...	+	*9*
8b School	5 pt.		free	...		
Cost of Group (*b*)		*9*	*9*		+	*9*
(*c*) Main Carbohydrate Foods:						
9 Bread	20 ℔		4¼[3]	...	...	
10 Flour	3 ℔		5¾[4]	+1 ℔	+	*6¼*
11 Potatoes	21 ℔		2[5]	...	—	*4½*
Cost of Group (*c*)		*11*	*9¾*		+	*1¾*
(*d*) Fresh Vegetables :						
12a Beetroot	1 ℔ 8 oz.		5	—1 ℔ 8 oz.	—	*1½*
12b Carrots	3 ℔ 8 oz.		4	+2 ℔ 8 oz.	+	*8*
12c Swedes	3 ℔ 8 oz.		4	—1 ℔	+	*0½*
12d Cabbage	5 ℔		4½	...	—	*2½*
12e Onions...	8 oz.		6	...	—	*1*
Cost of Group (*d*)		*5*	*1*		+	*3½*
(*e*) Other Foods :						
13 Liver	...		...	— 12 oz.	*—1*	*4½*
14a Rhubarb	...		...	—1 ℔	—	*4½*
14b Apples...	1 ℔		4	+1 ℔	+	*4*
15a Peas	1 ℔ 4 oz.		11	+ 4 oz.	+	*2¼*
15b Beans	1 ℔	1	3	— 4 oz.	+	*0¼*
15c Lentils...	...		...	— 4 oz.	—	*4*
16 Rolled Oats	2 ℔ 8 oz.		10	...	...	
17a Macaroni	4 oz.	1	2	— 12 oz.	—	*8½*
17b Semolina	1 ℔	1	0	...	+	*4*
18 Rice	1 ℔	1	1	...	+	*3*
19 Jam	6 oz.	1	2	...	—	*0¼*
20 Cocoa	4 oz.		11	...	+	*1¼*
21 Condiments	...	1	3	...	...	
22a Herrings	1 ℔ 8 oz.		10	—1 ℔	—	*10*
22b Kippers	1 ℔	1	0	+1 ℔	*+1*	*0*
23 Dried Fruit	...		...	— 8 oz.	—	*6*
24 Syrup	4 oz.		10[6]	— 4 oz.	—	*3*
25 Tea	8 oz.	3	0	...	—	*2*
Cost of Group (*e*)		*13*	*9*		*—2*	*3¼*
Total Cost		**63**	**7¼**		**+2**	**3¼**

[1] The price unit is : milk, one pint ; eggs, one egg ; cocoa, ¼ ℔ packet ; condiments, total outlay ; all other foods, ℔.

[2] Average price of inexpensive cuts.

[3] 1¾ ℔ loaf, 7½d.

[4] 3 ℔ bag, 1s. 5d.

[5] 7 ℔, 1s. 1d.

[6] Bought in 2 ℔ tin.

5 persons,[1] set out in Table I, at a total cost less than that stated by us (67s. 7¼d.). However, many women married during the war are only now beginning to acquire the habit of discriminating shopping and sometimes may have to pay dear for their inexperience. Hence, although for the purpose of this paper it is reasonable to assume that the housewife will make every attempt to do her shopping as economically as possible, it would be unreasonable to credit her with perfection. The problem, what shall I buy and how much of it, seemed negligible over a wide field of food purchases when an upper limit was set to them by rationing, while money incomes in many families were relatively high and the range of possible non-food expenditure very limited. All that is changed now and the number of housewives who have to consider every penny before they spend it, is growing. Good cooking and efficient shopping are again essential assets for the housewife who wants to feed her family satisfactorily, and the smaller her purse the greater can be the relative advantages of her skill. With a meat ration in November of 2s. per head per week and bacon—another expensive food—rationed at 5 oz. per head per week, much depended on the right choice of these two foods in making the best of a very limited income. Meat can be a very dear food; but it need not be so. Excellent minced meat could be obtained everywhere at 2s. a lb. and stewing meat at from 1s. 2d. to 1s. 4d., while good roasting meat was available at from 2s. 4d. to 2s. 8d. Roasting meat is, indeed, in the framework of a 'human needs' diet a luxury—but it is a luxury which through deep ingrained custom, has become an almost indispensable necessity for an enjoyable Sunday dinner. Bacon—measuring its nutritive value against its cost—is, at its present prices, an expensive food, whatever cut a housewife chooses. In spite of this we have assumed that a family living on a 'human needs' level would buy the full ration. In practice, an efficient housewife might even find it economical to do this, if instead of making fried bacon a breakfast dish, she uses an occasional rasher for flavouring dishes of legumes or vegetables, while boiling the remainder of the bacon to make tasty sandwich fillings for packed luncheons. Bacon suitable for these purposes could frequently be obtained at even less than 3s. 2d. a lb., which is the price shown in Table I. On the other hand, a housewife spending unwisely might easily have paid over 4s. for a lb. of bacon. Her Sunday joint and stewing meat, too, might have cost her far more than assumed by us; but there was no need to pay higher prices. Dearer meat would, of course, have meant less meat for the family ration, thus either reducing the total content of animal protein in the diet or else calling for the inclusion of more of the other foods supplying it.

In some localities, more could also have been paid for the vegetables included in our dietary, though a skilful shopper could often discover them at lower prices: carrots and swedes at only 3½d. a lb. instead of 4d., cabbage at 4d., instead of 4½d., and onions at 5d. The dearer vegetables were often those that had been pre-cleaned or picked over. These were found to contain only very small proportions of wastage, while the figures of nutritive intake calculated from our dietary assume very high proportions of such losses: 35 per cent for beetroot and swedes, 30 per cent for cabbage, and 20 per cent for onions.[1] From several samples we obtained a wastage of carrots bought in a clean condition of only about 5 per cent and of sound cabbage of about 6 per cent. The wastage of swedes and beetroot varied according to the size of the roots, the smaller ones yielding a higher proportion than the larger ones; in no instance, however, was it as high as 35 per cent, which could be attained only by roots of an exceptionally poor quality. All onions were of an excellent quality and the wastage ascertained ranged from 5 per cent to a little over 6 per cent.

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[1] Husband, wife, and 3 children of school age.

It was interesting to note that with the lifting of tea rationing the prices of tea blends had tended to go down, although some very expensive luxury blends made their appearance at the same time. During the first part of November, cheap tea at 3s. a lb. and less was, in fact, widely advertised in many window displays. By the end of November, the dearer blends began to take the more prominent place in many shops, probably with a view to Christmas purchases and consumption; but for the housewife who wanted to buy tea at 9d. a quarter it was available. A few shopkeepers stated that their cheapest teas had been quickly bought up, but the general opinion seemed to be that the demand for tea and tea prices will not find a steady level until the holiday season is over.

The much larger quantity of meat available in November—5 lb., as compared with 3 lb. 5 oz. in April—permitted the preparation of more satisfying tasty dishes, such as meat puddings, stews with dumplings, and pot roasts of minced meat. With this, more flour would have been required for cooking than in April and, in consequence, less of other starchy foods. We have assumed the main reduction to have occurred in the purchase of macaroni. Liver was included in the April dietary on account of its vitamin A value, because carrots—which, generally, are the best inexpensive source of this vitamin, in the form of its pro-vitamin, carotene—were then scarce and dear. In November, however, they were plentiful and cheap, so that no liver would have been needed. The seasonal shortage of eggs allowed only about one egg per head per week in November, instead of two eggs in April. Nutritionally eggs are a dear food; but they are a useful stand-by for the housewife, if culinary substitutes are scarce. There was, however, a very good supply of inexpensive fish, in particular herrings, kippers, and bloaters, which can make as appetizing a breakfast or supper dish as eggs, so that, for a healthy family, the reduced supply of eggs represented no hardship. For the sake of a greater variety we replaced the 2½ lb. of herrings in the April dietary by 1½ lb. of herrings and 1 lb. of kippers.

It will be seen that in spite of the numerous increases in prices the total cost of our dietary rose from April to November by only 2s. 3¼d., or 3½ per cent. The Ministry of Labour index of retail food prices showed from mid-

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[1] These are the percentage figures applied for calculating the net nutritive values in the *Medical Research Council War Memorandum No. 14*.

April to mid-October an upward movement of about 4⅛ per cent. (No Ministry of Labour figure later than that for October is as yet available.) The smaller rise of our figures of cost is, of course, mainly due to the fact that our dietaries for April and for November—although for practical purposes identical as regards their essential nutritive values—are not identical with respect to the weights of their main culinary items, as are the bases used for the Ministry of Labour index. But no efficient housewife would attempt to buy at all times the same quantities of specific foods; she rather selects what she considers will give her the best value for her money, even if there is no rationing to compel or induce her to vary the amounts.

No great changes were found to obtain between the prices early and those late in November. In some places, cooking apples tended to be a little dearer and cabbage and root vegetables a little cheaper, towards the end of the month. At the same time, the 3 lb. bag of plain flour was often offered at a halfpenny less than shown in Table I, *i.e.*, at 1s. 4½d. instead of 1s. 5d.

Table II shows the proportions taken up by the cost of the five food groups in Table I and compares them with the corresponding calorific and protein values. Regarded only as sources of energy—or of protein—fresh vegetables are obviously dear foods. Their main function in any diet, however, is to provide essential vitamins. Indeed, nearly two-thirds of all the vitamin A content of the dietary in Table I would be derived from carotene (counting three units of carotene as equivalent to one unit of vitamin A), *i.e.*, from the 3½ lb. of carrots, while the group of fresh vegetables as a whole would yield just over 50 per cent of all the vitamin C—the 5 lb. of cabbage alone yielding almost 34 per cent. In November, potatoes, too, are fairly rich in vitamin C, and since they are consumed in substantial quantities, are a very valuable source of it; in our dietary, over 40 per cent would come from this food. With regard to vitamin C we always halve the figures ascertained in laboratory tests for vegetables, so as to allow for losses in cooking, which for this vitamin can be substantial. In addition to fresh vegetables and potatoes, milk is the only food in the dietary which supplies appreciable quantities of vitamin C. Vitamin B_1 is contained mainly in the least expensive foods, *viz.*, bread, flour, potatoes, rolled oats, and legumes, which account for about three-quarters of the total content. It will be seen from a comparison of the figures in Table IV of standard requirements and of intake supplied by the diet, that the diet would be very rich in vitamin B_1. The same cheap

TABLE II

Relative Cost and Nutritive Values of Food Groups in Table I

	Group (*a*)	Group (*b*)	Group (*c*)	Group (*d*)	Group (*e*)	Total
	%	%	%	%	%	%
Cost	36½	15¼	18½	8	21¾	100
Calories	31¼	9¾	41	1½	16½	100
Protein, total ...	17½	16	41	2¼	23¼	100
Protein, animal ...	*46¼*	*42*	—	—	*11¾*	*100*

foods also represent the main sources of iron, but meat and all fresh vegetables would provide, respectively, 14 per cent and 6½ per cent of the total amount of this mineral. Over 53 per cent of the total calcium would come from the 23 pints of milk, 21 per cent from the bread and flour, and 8 per cent from all the fresh vegetables.

Table III indicates some of the overall changes in the composition of the five food groups distinguished in Table I, from April to November. The most noticeable displacements have occurred in groups (*a*) and (*e*), mainly through transferring tea from the group of rationed foods to that of unrationed foods. Since tea has no nutritive value this was bound to deflate the cost index of group (*a*) and to inflate that of group (*e*).

TABLE III

Indices of Cost and of Nutritive Values of Food Groups in Table I (April 1952=100)

	Group (*a*)	Group (*b*)	Group (*c*)	Group (*d*)	Group (*e*)	Total
Cost	108	108½	101½	106	95½	103½
Calories	106	100	105	97	81½	100
Protein, total ...	122	100	105	96	82½	100
Protein, animal ...			—	—	65½	102

Reference has already been made to Table IV. The figures in this Table show that the intake provided by the November dietary was very nearly the same as that provided by the April dietary, for the nutrients considered, though the intake of vitamin C would have been somewhat lower in April on account of the lower vitamin content of potatoes in that month. Our April figure for vitamin A, too, is lower than our November figure; this derives from the shortage of carrots in April. Nevertheless, this deficiency might have been only apparent, for it would not have occurred if not ox liver but sheep's liver had been bought, which contains about three times as much vitamin A, weight for weight, as does ox liver. Sheep's liver was not dearer than ox liver but, of course, less common; since, however, the human body

TABLE IV

Nutritional Intake from Diet in Table I

	MAEs[1] of Family of 5 Persons	Requirements per MAE per Day	Intake from 'Human Needs' Diet per MAE per Day	
			April 1952	Nov. 1952
Calories	3.73	3,000	3,100	3,100
Protein, gm.	4.43	79	84[2]	84[3]
Calcium, gm.	7.13	0.8	0.6	0.6
Iron, mgm.	5.40	10	15	14
Vitamin A, Intern. Units ...	5.00	3,000	3,500	3,700
Vitamin B_1, mgm.	4.68	0.90	1.7	1.7
Vitamin C, mgm.	5.00	30	35	48

[1] Male Adult Equivalents.

[2] 31½ gm. of this are animal protein.

[3] 32 gm. of this are animal protein.

stores vitamin A, even an occasional—not weekly—purchase of sheep's liver could have raised the efficient intake substantially.

We have found that by adapting food purchases to changes in supply, the cost of a well balanced 'human needs' diet need have risen by only about 3½ per cent from April to November. Our data of purchases were compiled on the assumption that the housewife was a careful shopper and, especially, skilful in making the best use of the increased meat ration and basing on it as many substantial meals as possible. It should be clear that only a housewife capable of judging the value of a food in relation to its price, and knowing how to cook, could have expected to obtain so satisfactory a diet at such a relatively low cost. But it seems important to stress once again that we have not assumed her to be an expert. Our figure of total cost is not based on the absolutely lowest prices ascertained by us. Also, it would not be necessary for proper nutrition to obtain every week exactly the items set out in our dietary, so long as over a reasonable period the food intake approximated to that suggested. For this, no detailed knowledge of food values is required but only common sense combined with some attention to such widely advertised basic facts as the importance for milk for children, of greens and root vegetables for all the family, and of the nutritiousness of the tasty and cheap herring.

T. SCHULZ.

ERRATA

BULLETIN, Vol. 14, No. 9 and 10 : Earnings and Living Standards in Moscow.

P. 318 : Through an error, a wrong scale of National Assistance rates was communicated to us for April 1952. The figures in Table V should read as follows :

Single Adult	30s. 0d.
Husband and Wife	50s. 0d.
Dependants :	
21 years and over	26s. 0d.
18—21 years	22s. 0d.
16—18 years	18s. 6d.
11—16 years	13s. 6d.
5—11 years	11s. 6d.
under 5 years	9s. 6d.
Family with 3 dep. children of school age (including family allowance)	84s. 6d.
' Human Needs ' Diet cost as percentage of allowance for family with 3 dependent children	72%

P. 323 : The footnote should read : *cf.* footnote 2 on p. 319.